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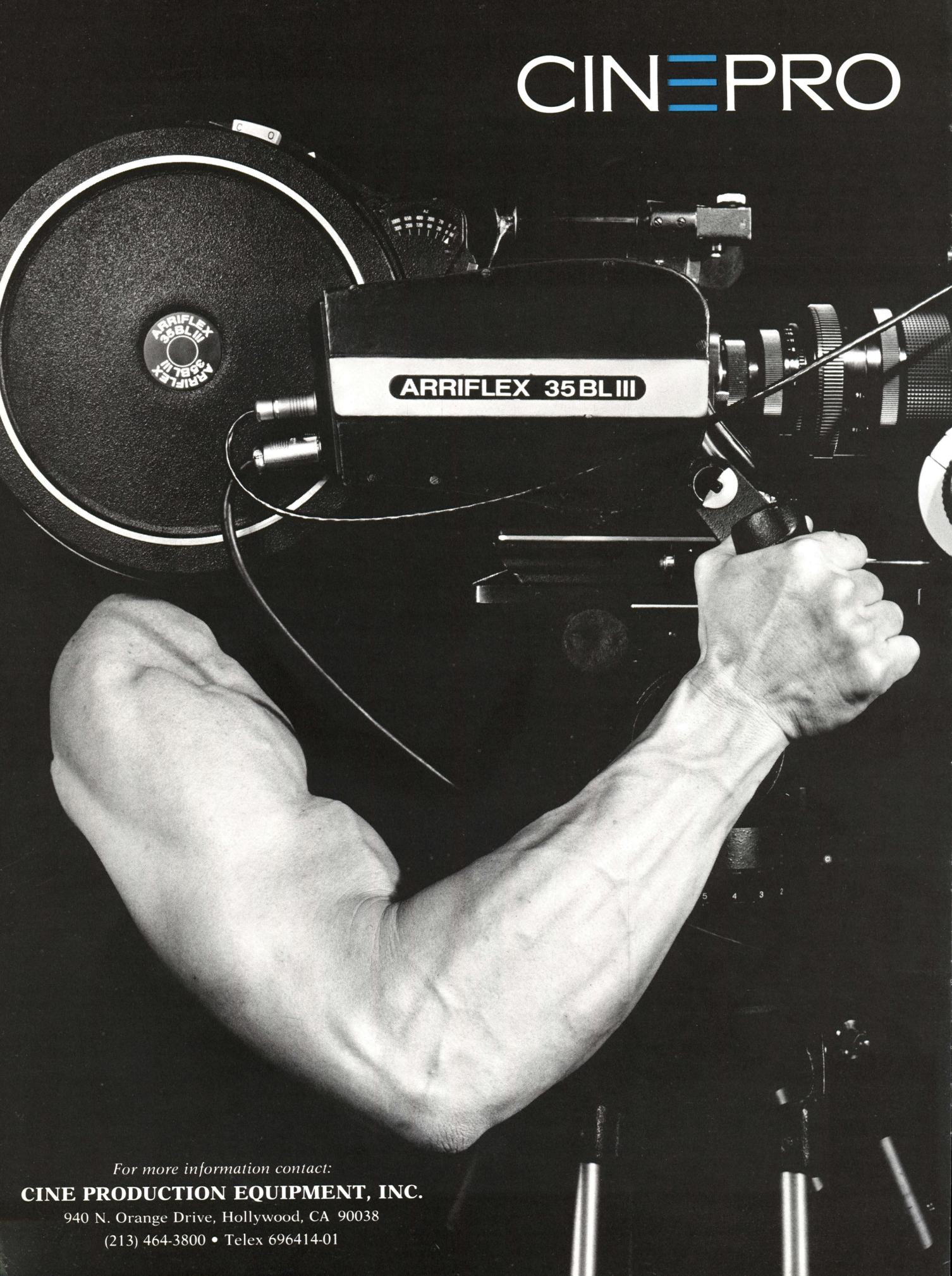

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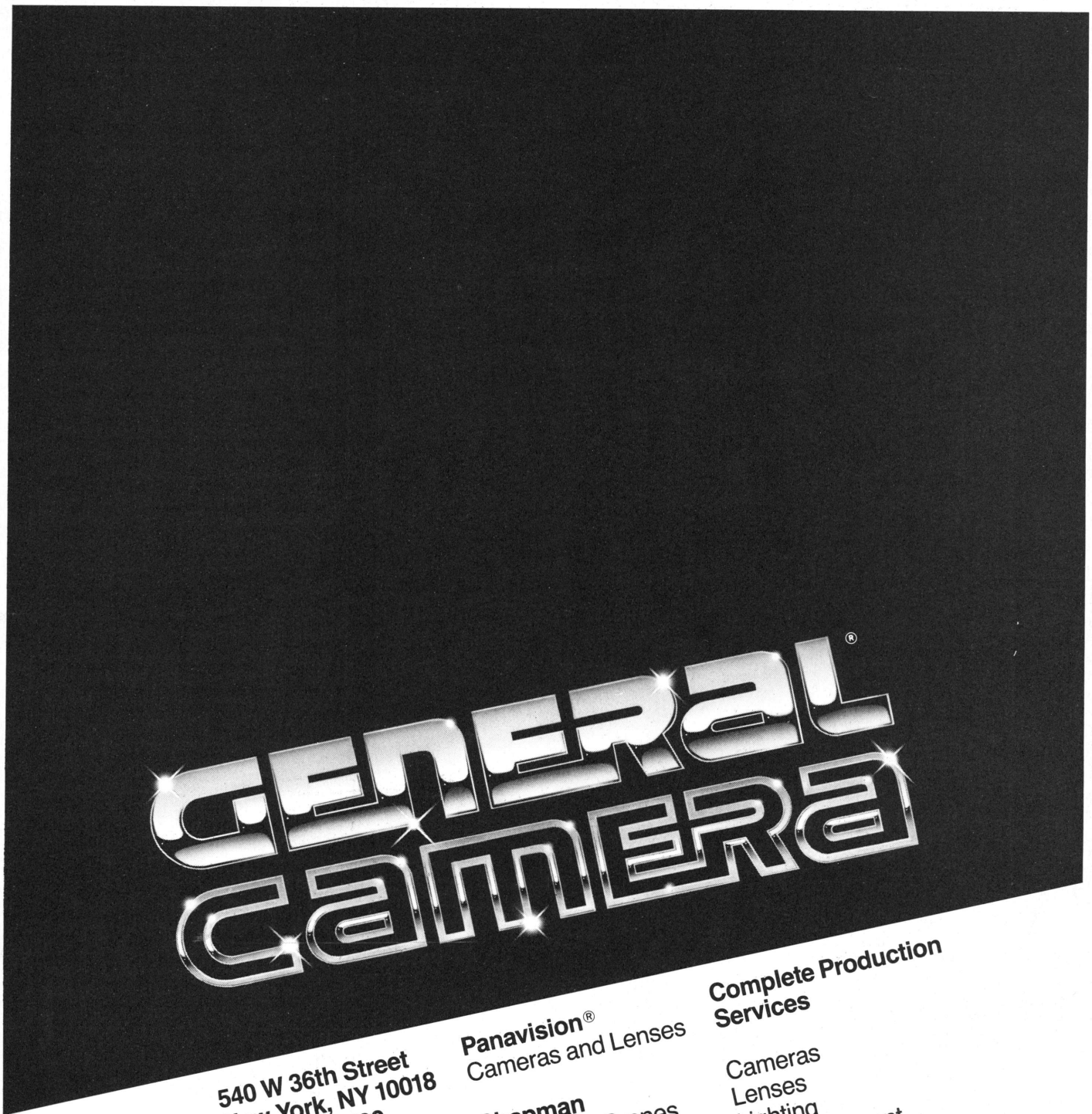

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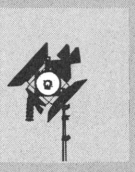

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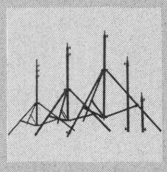

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The International Journal of Film and Video Production Techniques

September 1985 Vol. 66 No. 9

American Cinematographer

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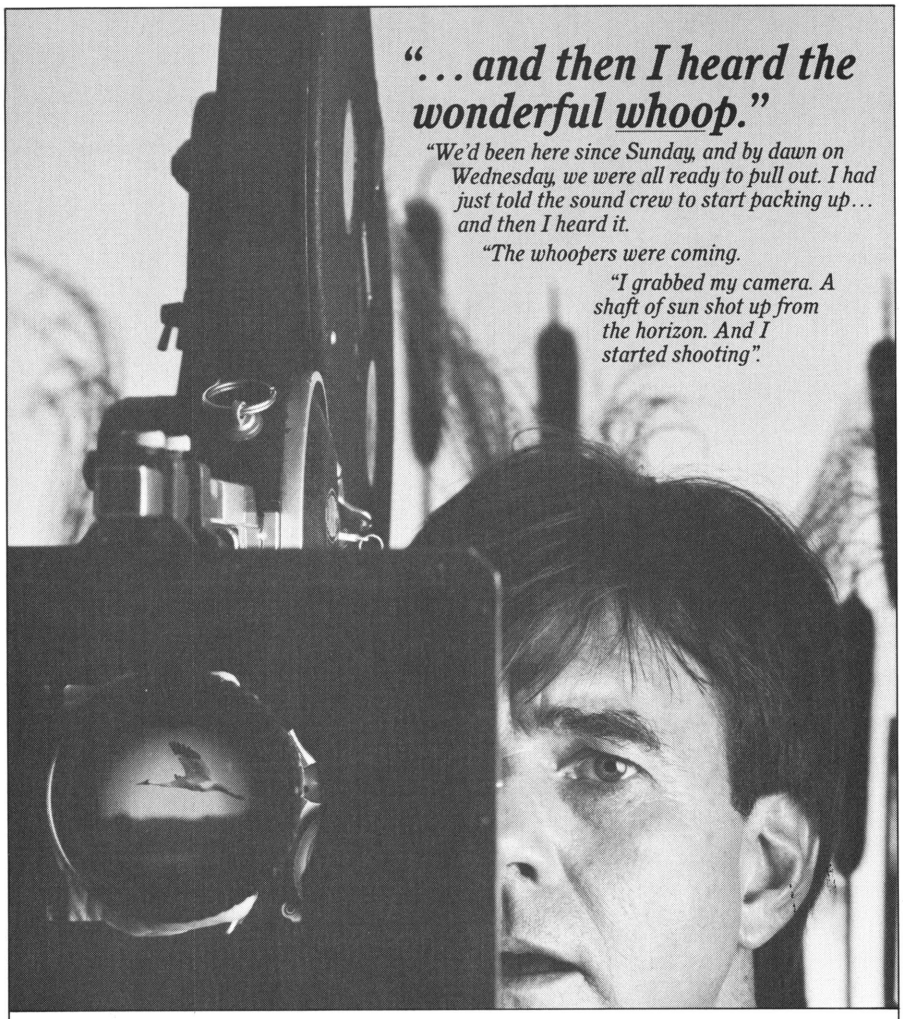
On Our Cover:
OceanQuest producer/director Al Giddings and Shawn Weatherly discov a skull deep within the sunken Japanese troop transport, *Aiko-ku Maru,* in Truk Lagoon, Micronesia.


"...and then I heard the wonderful whoop."
"We'd been here since Sunday, and by dawn on Wednesday, we were all ready to pull out. I had just told the sound crew to start packing up... and then I heard it.
"The whoopers were coming.
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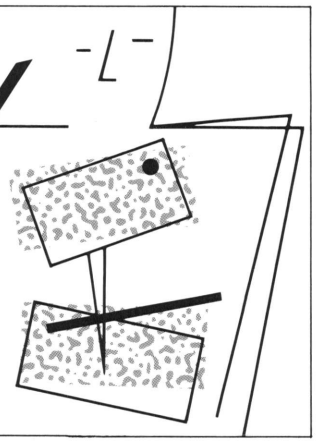

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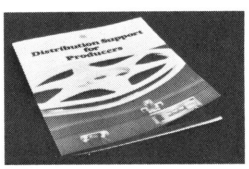

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The American Society of Cinematographers is not a labor union or a guild, but is an educational, cultural and professional organization. Membership is by invitation to those who are actively engaged as Directors of Photography and have demonstrated outstanding ability. Not all cinematographers can place the initials ASC *after their names.* ASC *membership has become one of the highest honors that can be bestowed upon a professional cinematographer, a mark of prestige and distinction.*

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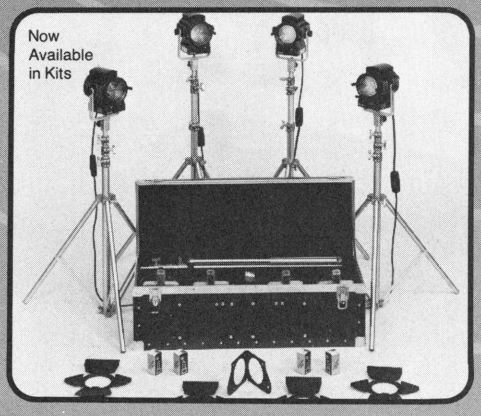

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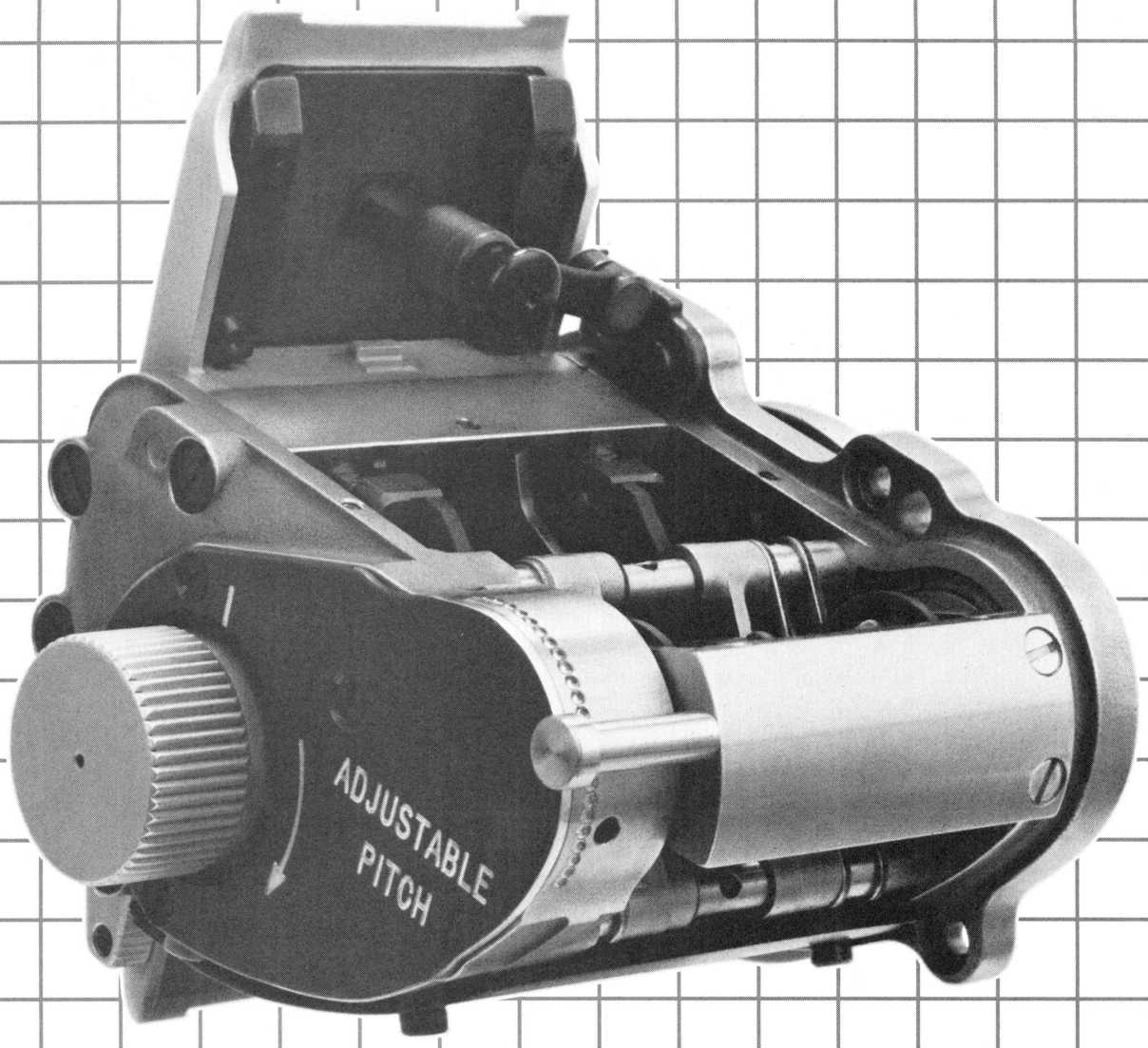

Four thousandths of a millimeter between each of the twenty-four adjustment positions

Look at the photo above. To the right of the words ADJUSTABLE PITCH you can see a row of little circular detents in the curved white metal surface.

You can also see the small white knob on its shaft in front of the row of detents. That's the pitch adjustment control knob.

There are twenty-four detents in that row. Twenty-four pitch settings. Moving the knob from Position 1 to Position 24 alters the camera movement's pull-down pitch by .1mm. One tenth of a millimeter. Moving the knob from Position 1 to Position 2 alters it by .0043mm. Forty-three ten-thousandths.

The SMPTE perforation pitch spec. for camera raw-stock is 4.740mm. The tolerance is plus-or-minus .010mm. One hundredth of a millimeter.

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First Assistant since 1957

Mr. Barth is probably the most experienced First Assistant Cameraman alive. He retired last year, after working in Hollywood as a First Assistant since 1957.

Even BNCs

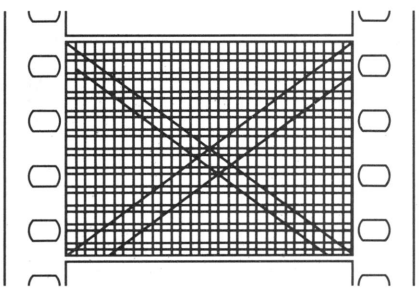
"We would sometimes get noise problems with every camera," says Mr. Barth. "Even the Mitchells, inside their big blimps. Noise can be an extremely mysterious thing."

Used adjustable pitch all the time

"As soon as adjustable pitch was introduced, I used it all the time from then on. With every reload and after every print take."

Rawstock pitch changes

"With certain makes of film, the pitch changed constantly—even in the middle of a roll," says Mr. Barth. "*Every* make of film has pitch variations now and then, especially as the temperature changes. And every load has its quietest pitch spot."



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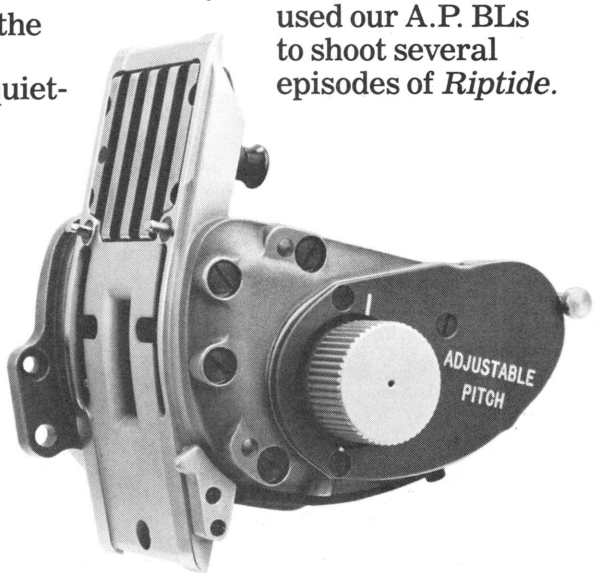

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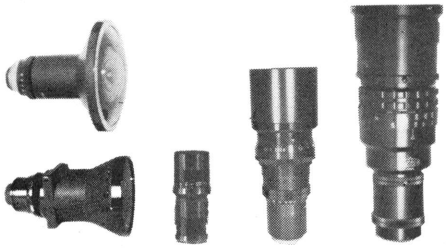

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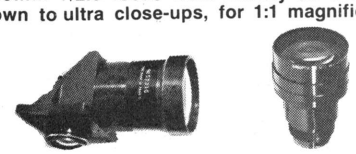

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Letters

The Marionettes

The fine article on the special visual effects for *Life Force* (*A.C.* June 1985) missed one aspect of possible interest to your readers. This was the series of opening shots of the shuttle astronauts working their way into and through the alien spaceship.

Shot at Apogee under the able direction of John Dykstra, this involved four sophisticated and completely articulated marionettes with unique, charged-battery units in their back packs for "on-off" control, designed by Alvin Miller. All were constructed under the supervision of Grant McCune by modelmakers Tom Pahk, John Short, Ken Swenson, and David Beasley, with costuming by Wanda Watkins. Special controls and articulations were by me.

A custom cage, constucted to house the manipulators, was raised by a large electric fork lift to the top of sound stage II, in front of the large blue screen. Track was already in place in front of the screen and wired into motion control. My crew of marionette manipulators included Vivian Brunner, Mary Johnston, John Patrick and Renee Laub. This all required very subtle control as the figures, hanging in air, had no floor base to stabilize them. Any bad movement destroyed the "in space" effect required, becoming even more difficult in the extreme heat caused by intense lighting.

Many camera speeds were used on up to 48 fps, and lighting problems were challenging due to the need to duplicate the effects in the background paintings. Gaffer was Lee Pogoler. Arcs and 10Ks were used with colored gels to get the tunnel effect, including a cukoloris for exotic shadows. The camera unit roared down the track toward the figures for approaching shots and sped backwards to simulate the figures going away from camera. On very fast runs, key grips Steve Sass and Mark Cain used their muscles to prevent Dykstra and camera operator John Sullivan from going off the end of the track and into the studio wall. Maryan Evans was assistant cameraperson on the first series of shots and Eric Peterson on the second series, where the figures had to be restrung to produce a different "from-under" shot indicated in the storyboard.

This overall technique (worked out by John Dykstra) was first used on the ABC film, *Starflight—the Plane That Couldn't Land,* on which the Brunner group also worked.

—John D. K. Brunner
North Hollywood, CA

Conversion Confusion

In the article, "Olympic Cinematography" (Feb., 1985) is the statement that it was necessary to "convert the machines for Fuji film . . . Panavision is designed to Kodak specs."

I have been a "Cinematographer fan" since the 1930s (when DuPont Superior seems to have been the number one stock) and I was under the impression that the physical aspects of 35mm film for motion picture use had been standardized a long time ago.

—A. Franklin Collier
Montgomery, Alabama

According to Elias J. Drexler, of Fuji Photo Film USA, Inc., "The statement, simply stated, is wrong. Fuji, Panavision and Cappy Productions worked together very closely to insure there would be no mishaps in photographing the Olympics. All participants were most anxious to avoid any problems in shooting this prestigious event. To this end, every *mechanical item, including the cameras* was *carefully checked . . .*

"Fuji Film is fully compatible and absolutely complies with the ISO International standards and is used worldwide . . . Dallas, Knots Landing *and* Falcon Crest, *amongst many others, are shot with Fuji Film in Panavision Cameras."*

Cinematographer Andrew Laszlo, A.S.C. Lights "Remo Williams and the Secret of Sinanju" with the Powerful New...

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Making its debut...

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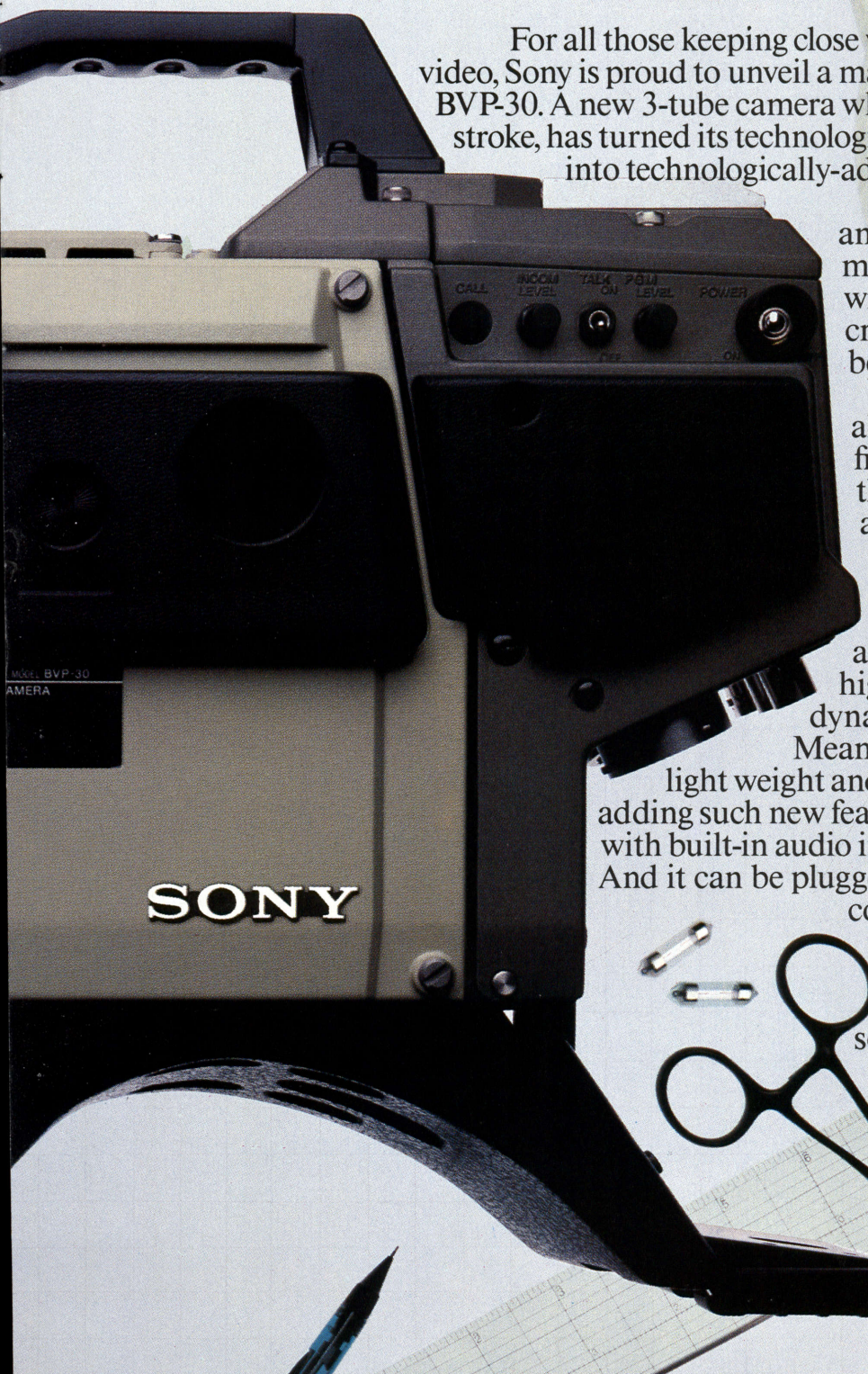

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The Bookshelf

by George L. George

Four outstanding directors are discussed in new volumes of the scholarly Guide to References and Research series. In **Cecil B. DeMille,** Sumiko Higashi remedies the scarcity of serious critical material with a thorough archival search (*$35*). In **Elia Kazan,** Lloyd Michaels praises Kazan's belief in cinema as a medium for artistic expression and his gift for mise-en-scène (*$35*). **René Clair** by Naomi Greene traces the French director's career from early experimental films to his mastery of the medium (*$48*). John Allyn's **Kon Ichikawa** discusses the gifts of the versatile Japanese filmmaker (*$45*). Each volume includes thorough documentation, biographies, full filmographies, bibliographies and archival sources (*G. K. Hall, Boston*).

On the 25th anniversary of his death appears **The Autobiography of Cecil B. DeMille,** originally published in 1959. This lengthy and detailed memoir of his career provides only scant insights into his personality and private life (*Garland, NYC, $55*).

A delightful biography by daughter Marian Blackton Trimble, **J. Stuart Blackton** offers a highly personal view of early Hollywood. Blackton, a pioneer director and producer, experimented in many genres, displaying resourcefulness and opportunism during the shaky 20s and 30s (*Scarecrow, Metuchen, NJ, $16*).

Michael Singer's valuable yearly reference guide, **Film Directors** (3rd ed.), lists 1400 working U.S. and foreign directors with a cross-indexing of their films. Also included are vital statistics, home and/or agents' addresses, and stimulating interviews with six leading directors (*Lone Eagle, Beverly Hills, CA, $34.95*).

The name of John Howard Lawson evokes both the political turmoil of the McCarthy era and a distinguished contribution to the theory and practice of screenwriting. Gary L. Carr's **The Left Side of Paradise** is a thoughtful assessment of Lawson's work, life and political vision (*UMI Research, Ann Arbor, MI, $34.95*).

Two of Lawson's books, recently republished, define his approach to his craft: **Theory and Technique of Playwriting and Screenwriting** and **Film in the Battle of Ideas** discuss incisively the principles of dramatic construction and the role of film in social conflict (*Garland, NYC, $50 & $22 respectively*).

The 1985 edition of **The Producer's Masterguide** is an exhaustive store of production data on the motion picture, television, commercials, cable and videotape industries in the USA, Canada and Great Britain. Compiled by publisher Shmuel Benzion and edited by Rene S. Ash, this hefty manual provides detailed and accurate information on every facet of production, and stands out as an authoritative reference source, invaluable to industry professionals (*Producer's Masterguide, 611 Broadway, NYC, $69.95 + $4.95 shipping*).

Published by the Academy of Motion Picture Arts and Sciences, the **1984 Annual Index to Motion Picture Credits** provides a full production personnel roster of all the 320 feature length films that opened in Los Angeles during that year, thereby qualifying them for Academy Award consideration. Meticulously edited by Mrs. Byerly Woodward, it is an authoritative record indispensable for scholarly research (*AMPAS, Beverly Hills, CA, $80, $60 to subscribers*).

In **Cinema and Technology,** Steve Neale explores the historic progress of the image, sound and color technologies, and identifies the economic and esthetic pressures at the root of these developments (*Indiana U. Press, Bloomington, IN, $25/9.95*).

Ably edited by Elisabeth Weis and John Belton, **Film Sound:**

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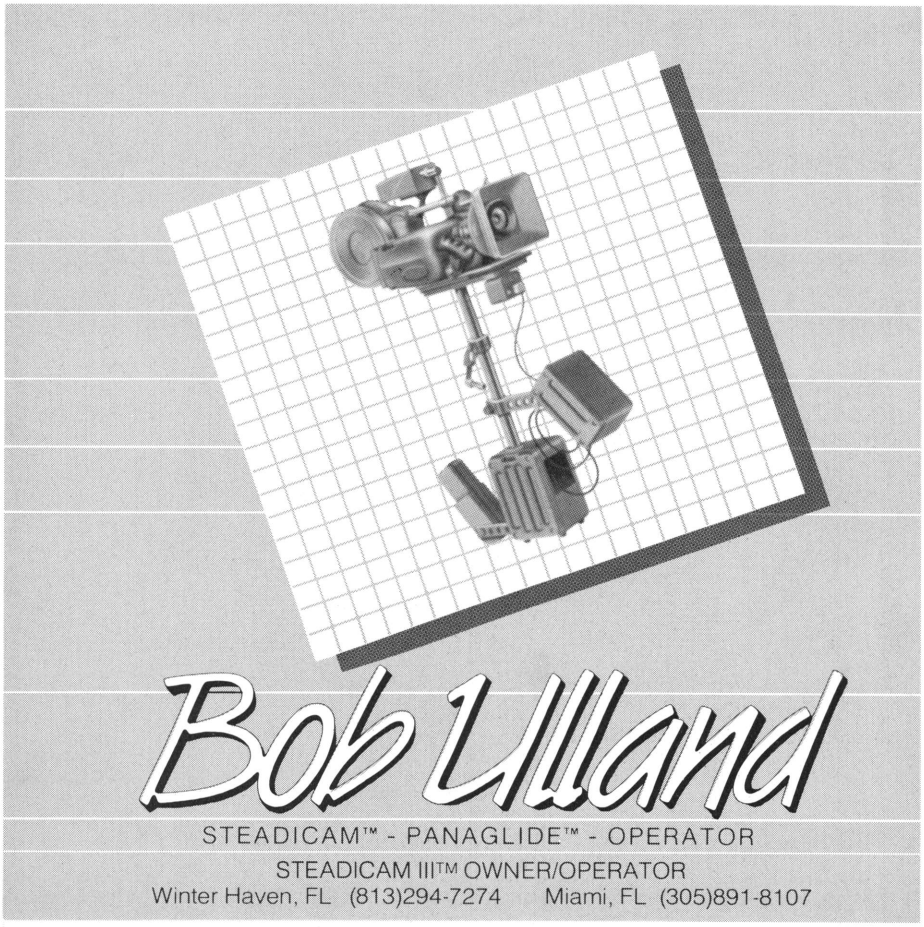
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Theory and Practice is a comprehensive and significant anthology of essays dealing with the history, theory and esthetics of film sound. Quoted are such eminent filmmakers as Welles, Clair, Hitchcock, Renoir, Coppola and Altman (*Columbia U. Press, NYC, $35/14.50*).

Hollywood filmmaking methodology is analyzed in a probing, scholarly study, **The Classical Hollywood Cinema** by David Bardwell, Janet Staiger and Kristin Thompson. Examining basic conditions, the authors conclude that, despite then existing differences in production, technological progress compelled standardization and systematic norms in both the industry's style and business operations (*Columbia U. Press, NYC, $49.50*).

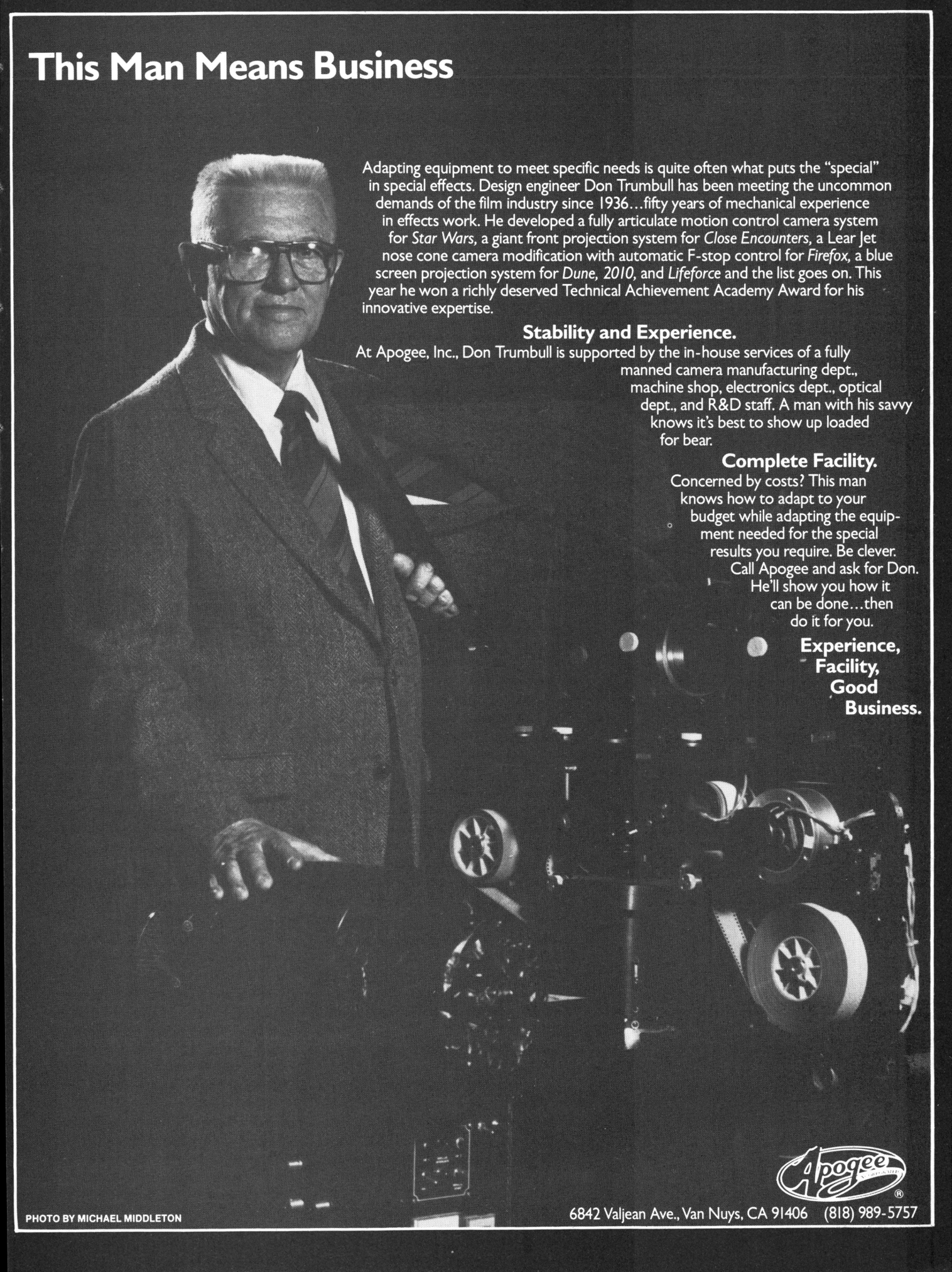
The ideological content of American films of the 1930–80 period is analyzed in Robert B. Ray's study **A Certain Tendency of the Hollywood Cinema.** Ray asserts that the economic structure of our society precludes films taking sides in the hope of having it both ways (*Princeton U. Press, Princeton, NJ, $45/14.50*).

The way movies reflect the nation's social, political and cultural fabric is examined by Leonard Quart and Albert Austin in **American Film and Society since 1945**, perceptively relating specific films to popular moods and concerns (*Praeger, NYC, $12.95*).

During the last 10 years, Australian films gained a well-deserved international reputation for vitality and freshness. David White's **Australian Movies to the World** reviews down under production since 1970 in an informative and well-illustrated volume (*Ungar, NYC, $14.95*).

In **Marlene Dietrich's ABC,** the star offers an assortment of sophisticated, witty and often practical thoughts on a number of topics from love to girdles and hamburgers (*Ungar, NYC, $7.95*). △

This Man Means Business



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Aloha From Hawaii!

First there was Steadicam, then Skycam – now there's JET-CAM. We at Hot Shots came up with the name after the first trial run and positive results gathered from the new system . . . JET-CAM.

It happened one day while Bob and I were sitting on the beach watching our assistant cameraman, Scott Watkins, jet ski for fun. We got to thinking, what if we mounted the cameras on the ski? We could get all kinds of incredible footage. Scott is a top pro jet skier and with his ability and our photographic knowledge . . . hmm, we might have something here. We went to work on it right away.

We contracted Taro Pasqual of White Water, Hawaii to make the camera mounts for our lightweight Millikens and Eyemos. Taro is the best fiberglass craftsman I've ever met and within a week Hot Shots had a prototype. Mounting the camera to the ski was perfect for certain types of filming, P.O.V. of surfing, jumps, etc., but all of the camera setups were fixed and the jet ski operator's positioning was directly related to usable shots.

Sometimes Scott would have to dodge surfers paddling out, coral heads that would come up at low tide, and windsurfers sailing by . . . all these distractions could blow the shot. Because of this problem we went back to the drawing board. What if Taro built a "jump seat," so to speak? Scott could drive and we could film. Our minds went wild, a photographic frenzy took place. Imagine the possibilities! We could revolutionize the look of action water photography.

We at Hot Shots have always considered ourselves on the cutting edge of in-surf water photography and with a name like Hot Shots you've got to take chances. In our search to develop the jump seat idea we came across a company based in California called Fun Tech. They manufacture a molded plastic stabilizer for beginner jet skiers. It's designed for one rider, but its just big enough for two, provided the operator is experienced. Fun Tech calls this jet ski accessory "The Wedge".

With the JET-CAM assembled, Scott can now drive while I straddle the back seat and film. Now the operator can totally concentrate on picking the best line of attack for filming and I can frame the action, deal with F stops, water drops and, oh yeah, turn the camera on. As the cameraman you must have complete, I mean 100% complete confidence in the jet ski operator. You must direct his actions and criticize every take . . . "draw out the turns, no sudden moves, easy on the gas, get planing earlier, etc." The JET-CAM is much slower than a regular jet ski, maneuverability is decreased so anticipation of problem areas becomes a major factor; in fact you must be able to read the water.

Neither the operator or the cameraman are strapped into the JET-CAM, and must rely on a sense of balance. It's particularly difficult for the camera operator because his eye is up against the eyepiece, and a drastic change of direction can toss him off the back. But don't let this discourage you from trying some shots with the JET-CAM; you must remember we are pushing the system to the limit in huge waves here on the North Shore of Hawaii.

Our first attempt at filming from the JET-CAM was a remote windsurfing spot a half mile out at sea called Revelations. The surf was 8 feet. I used my still camera in a water housing to test out the ride. With the still camera I could see the action more clearly and make notes of the problems; bounce, focal lengths, and directing Scott, the JET-CAM operator. After our first ride filming Craig Yester (professional windsurfer), Scott and I looked at each other and screamed out "It's gonna work, It's gonna work . . . movies will be unreal!"

That was our first trial run; we've since made some modifications to the JET-CAM and before we knew it we were out filming in 12–15 foot surf. You don't know the meaning of the word nervous until you've dropped in on a 15-foot wave while filming a surfer.

continued

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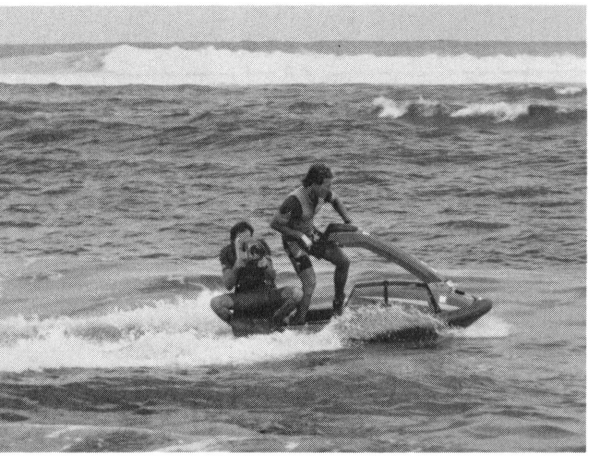


The sight is awesome. I remember yelling to Scott as the wave started to break . . . "Punch it Scott . . . Punch it . . . PUNCH IT!!" He yelled back "It is PUNCHED!" The wave broke two feet behind the ski, blasting us, but he kept it punched and pulled it off. I've been filming surfing for ten years and that moment was one of the most radical I've ever experienced . . . what a rush!

We at Hot Shots have been using the JET-CAM for quite awhile. Now we can look out at the surf and know what kind of footage we can expect to bring home. Its a great second angle to give an editor. It gives him a shot where no boat cameraman has dared to go and makes for exciting live action.

For further information contact Hot Shots, P.O. Box 2624, Honolulu, HI 96803.

—(Ron Condon)

Zoom Lenses

Angenieux Corp. of America has introduced a new generation of high quality zoom lenses for ½" and ⅔" EFP cameras and 1" and 1¼" studio and O.B. cameras.

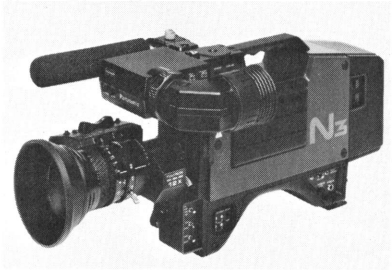
Common to Angenieux's "new generation" is a total redesigning of zoom and servo controls using belts instead of gears, improved internal hood soundproofing, and a variety of long sought-after innovations. Among these are recessed hood handles for easy removal and installation, a digital readout for iris position, range extender position, and diascope location. The new Angenieux lenses feature an internal heater to maintain normal operating temperature when the lens is not in use, a three lamp diascope, and a convenient, new carrying case which permits one person to easily transport the lenses.

The new Angenieux 25x8.5 HP lens for EFP ½" C.C.D. cameras has a zoom range of 8.5mm–215mm, maximum aperture of f/1.4, and a built-in 2x extender.

The new Angenieux 24x10 HP lens for ⅔" EFP cameras has a zoom ratio of 10mm–240mm, maximum aperture of f/1.4, and two extenders (1.5x and 2x). The optics of the new 24x10 HP have been specially adapted for the new studio ⅔" broadcast cameras, such as the RCA CCD shuttered models, the Philips LDK-26, the Hitachi SK-970, the Thomson TTV-1530, and the Sony BVP 360.

Angenieux's exclusive High Efficiency Coating (HEC), rated at a world's record 99.8%, ensures higher contrast images which look dramatically sharper. The HEC coating is applied to all surfaces of Angenieux's lenses.

In the United States, the company is headed up by Joseph "Tony" Martinez, and is headquartered at 7700 No. Kendall Drive, Miami, FL 33156, (305) 595-1144.



Versatile Video Camera

Panasonic Industrial Company is featuring the new NiteHawk™ color video camera. The product is designed to expand the horizons of three-tube cameras through its use of ½" Newvicon tubes. The NiteHawk will operate at a low light level of 20 lux at +18dB of gain.

Because the tubes are practically burn-free, even high contrast objects can be shot confidently. With a 57dB signal-to-noise ratio and over 600 lines of horizontal resolution (G Ch), the NiteHawk also boasts accurate color reproduction for true flesh tones. It was designed to provide a host of users—including broadcast ENG crews—with high-quality, low-light operation.

To expand the dynamic range of its Newvicon tubes, the NiteHawk has a feedback beam control (FBC) circuit. As a result, blur and comet tailing are reduced up to four times from original video levels. In addition, the camera contains a newly-designed, improved auto-centering circuit. While many cameras have difficulty centering in low-contrast fields, this feature allows the NiteHawk to give precise registration, even from the unstable shoulder position. With the iris closed or lens cap on, the camera also holds the R and B centering signals at their last settings.

Like its predecessor, the camera is built for mobility. Its rugged, compact, lightweight body, with magnesium alloy side panels, is tailor-made for on-location shooting. An aluminum die-cast chassis makes the camera sturdy enough for these rough applications. It also has special RF protection to prevent signal interference.

Other advanced features of the NiteHawk include: built-in full field color bar generator, auto-white and black, Y-I/Q encoder and Y-I/Q output for M-format recorders, vertically installed plug-in glass expoxy circuit boards, built-in genlock circuit, knee circuit, servo auto-lens circuit and iris waiting circuit. An optional studio version, which includes a 5-in. electronic studio viewfinder and remote control unit is available.

For further information, contact: Panasonic Industrial Co., One Panasonic Way, Secaucus, NJ 07094.

New Life for Beaulieu

There has been a takeover of the family controlled Beaulieu firm by a French financially backed group.

As a result, the firm known as Beaulieu Industrie has been established. Whereas in the past Beaulieu production was represented by Maison Brandt Freres, Beaulieu Industrie is already proceeding and continuing with the production of the current Super-8 Models 6008S (Sound on Film), 6008PRO (Double System) Cameras. These are available with 6 to 90mm Zoom Angenieux f1.4 lenses.

Along with these two advanced Super-8 Models, a new version of the Beaulieu 16mm R16B camera is being produced incorporating quartz controlled features.

continued

"Ikegami's HL-79E gets me through with flying colors—every time."

— Bill Napier, Director of Engineering WBTV, Charlotte, North Carolina

The HL-79E camera is adding another dimension to the phrase "The Great Outdoors" as more users discover that the world's best ENG camera is also the best for EFP.

And with over 5,000 HL-79 cameras sold, the legend continues to soar.

On or off your shoulder, the Ikegami HL-79E is still the unchallenged leader with features that include Dynamic Detail Correction, Chroma Aperture Correction, Highlight Aperture Correction and Auto Contrast Compression. Plus, the HL-79E offers superior contrast range, S/N ratio, registration accuracy, resolution, viewfinder performance and more.

As an EFP camera, the HL-79E can be used in various systems configurations, and controlled remotely by the MA-79 Multicore Adapter through multicore cable (up to 300 meters), or by the TA-79E Triax Adapter through triax cable (up to 2,000 meters). Available viewfinders include 1½, 4½ and 3 inch.

The camera can be set-up using conventional manual techniques or an optional microprocessor assist.

With the HL-79E as an EFP or ENG camera, the sky's the limit.

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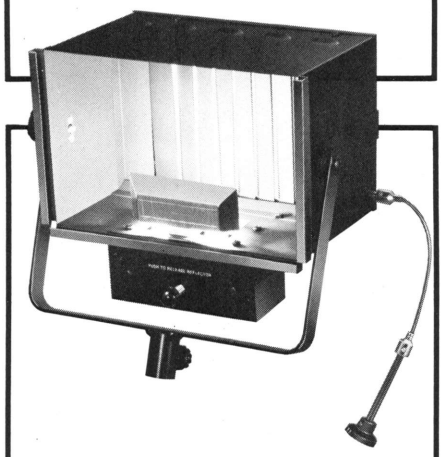

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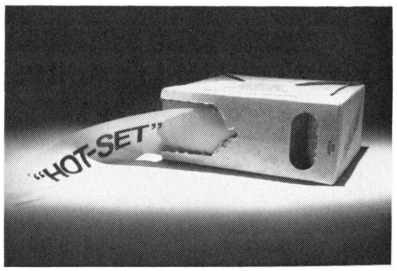
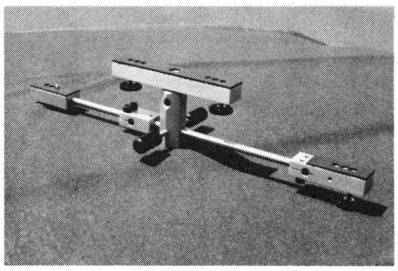


Hot Set Tape

Because of the demand for it, Matthews Studio Equipment has made a "Hot Set" tape available to production companies and producers who wish to ward off unauthorized persons from furniture, set sections, "hot sets" with shooting in progress, crowds, parking areas, windows or doors which must remain shut or open. There is no end of uses for this 3 inch wide 1000 foot roll of tape which comes in its own dispenser box ready for cutting into the required size strips.

If you desire to have your name or any message imprinted on your tape there is a minimum order of 12 rolls and a one time additional imprinting charge, with a three week delivery requirement to allow for the printing service. Call or write Matthews for details at 2405 Empire Avenue, Burbank, CA 91504. (818) 843-6715.



Tripod Adapter

A revolutionary new type of tripod adapter has been introduced by Twin-T Industries of Wood-Ridge, N.J.

The extra heavy duty model #TT2 MULTI-DAPTER system is capable of accepting – simultaneously – up to four video, motion picture, or still frame cameras, or any combination thereof.

Any dual combination of video/motion picture/still frame cameras can be mounted on the top horizontal platform, which is rotatable – and removable from – the vertical support. The left and right side platforms – both of which are also rapidly removable from the vertical support – with their relative independent element rotatability feature, permit the cameraman to frame and shoot independent areas of a subject field simultaneously. A binocular adapter is also available.

For example: A video cameraman who also wants still photographs would not have to move attention from his camera, but merely press a handy cable release – attached to a parallel mounted single lens reflex (with a medium to long focal length lens) – to take what he considers to be advantageous closeup "snapshots" of his subject.

A video/motion picture cameraman covering a sporting event can have one camera trained on the main event with a second camera-lens combination covering a different portion and angle of the subject field.

Vertical section, mounting platforms and heavy knurled locking knobs are satin finished anodized aluminum. All else is stainless steel. The unit is absolutely rustproof, and carries with it full customer satisfaction and a lifetime guarantee.

For further information, please contact: Gary Tahmesian, Twin-T Industries, 448 Windsor Road, Wood-Ridge, N.J. 07075, Telephone: 201-933-5498.

Audio Monitoring System

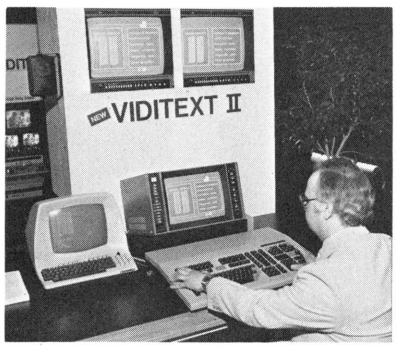
The OSAR MODEL 202 is a professional Audio Monitor System especially designed to meet the needs of stereo broadcasters. It has three LED VU meters and one 3″ x 5″ quality speaker. The three meter approach gives an immediate visual display of any phase errors which could be present in the stereo signal. The unit also allows the two audio input channels to be monitored with dedicated LED VU meters.

The program VU meter monitors the sum of channel one plus channel two, channel one only, or channel two only, determined by the channel select switch. The speaker amplifier follows the input select switch with the

level set by the front panel volume control. The unit is completely self-contained.

Applications would include overall studio monitoring, audio/video tape machine monitoring, and remote feed input monitoring.

For further information, contact Mark Electronics, Inc., P.O. Box 1475, Gainesville, FL 32602, Telephone: 904/375-4434, Telex: 503728.



Character/Generator Line

Thomson-CSF, Stamford, Connecticut, is expanding its Vidifont® character/generator product-line with Viditext II™, continuing its tradition of operator-oriented design. Priced competitively, Viditext II contains many of the basic features of the higher-end Vidifont Graphics V with the capability to incorporate optional features such as animation, time sequential overlays, Vidiclock™ and the playback sequence controller.

Viditext II has access and compatibility with Vidifont's complete font library of 100 faces including creative services for custom graphics and logos. It offers corporate, educational and commercial users a new dimension in character graphics generation at a moderate price, and its compact design is especially beneficial for graphic environments with limited space.

Ergonomically efficient and user comfortable, Thomson's Viditext II provides conveniently-grouped function, editing and operational keys. Each 5- 2″ disk holds up to 20 fonts or provides random access of up to 600 display pages, offering storage on the same disk. With optional Winchester Drives, storage capability can be increased the equivalent of 32 flexible disks at one-fifth the access time. Rapid

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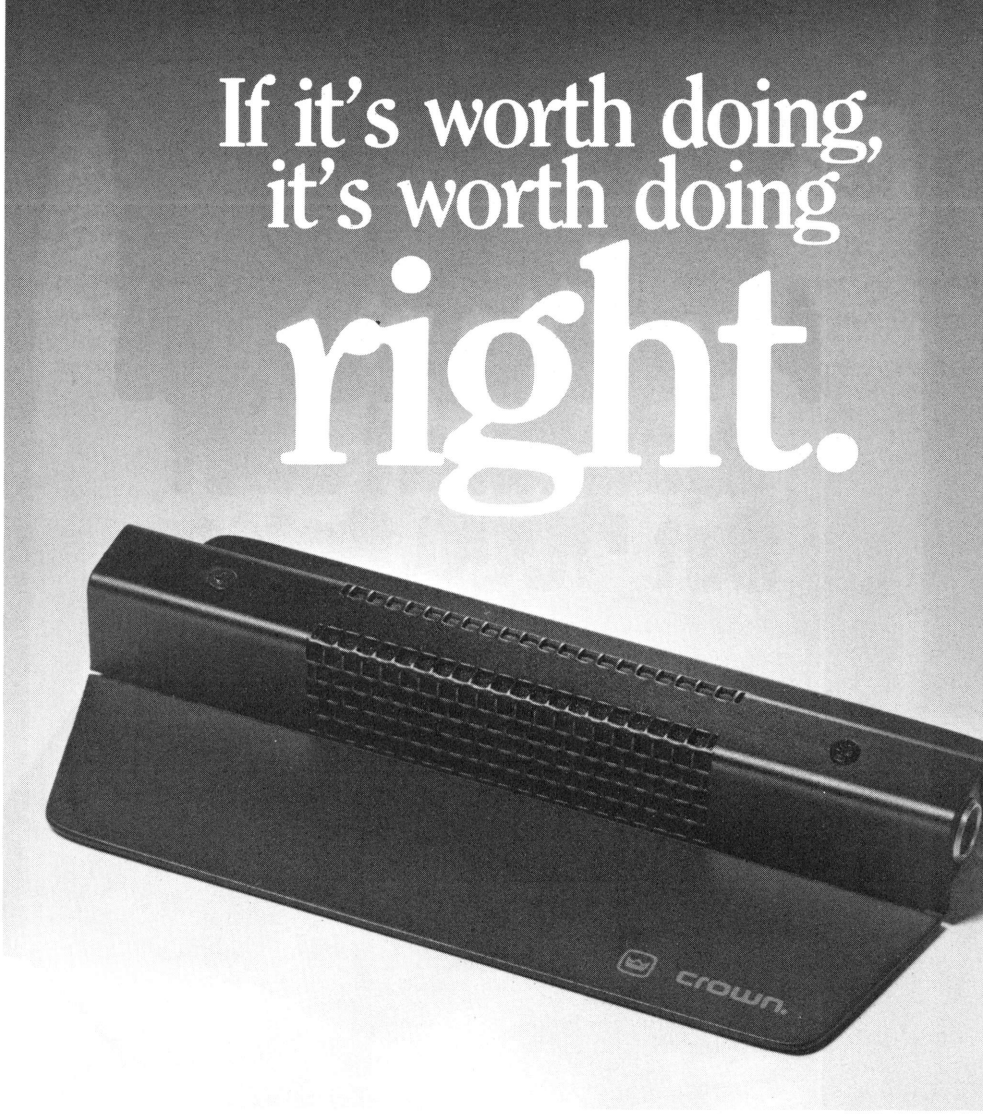

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And because the microphone is mounted on a boundary, direct and reflected sounds arrive at the diaphragm in-phase. The result...wide, smooth frequency response free of tonal coloration or unnatural sound which can occur with conventional microphones.

Self-contained electronics eliminate the need for a sometimes awkward in-line preamp box. The PCC-160 can be powered directly from the console or other remote power source. Or if battery power is convenient, a battery supply unit can be inserted anywhere in the mike line...right up to the console or mixer.

For maximum flexibility, the PCC-160 features an exclusive three-way "bass tilt" switch which allows you to tailor, up or down, the low-end response for special applications or unusual boundary sizes.

Due to its low profile and "go away gray" finish, the PCC-160 microphone becomes nearly invisible in use, making it ideal for the stage, newsroom or lectern top.

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The PCC-160. A microphone meeting the needs of today's sound professional with today's most advanced technology.

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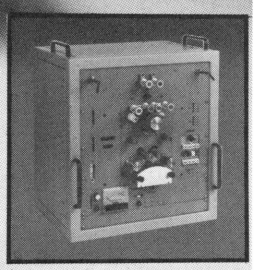

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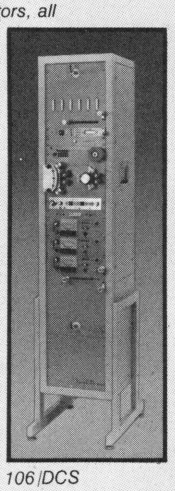

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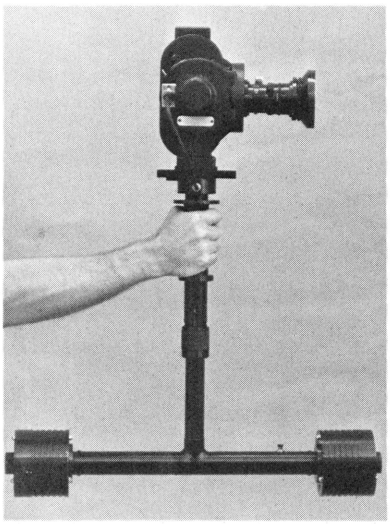
access for updates and changes is allowed with multiple off-line channels, while on-line use occurs simultaneously with different fonts, colors, formats and messages.

More information on Viditext II may be obtained from Tom Hindle, Product Manager, Thomson-CSF Broadcast, Inc., 37 Brownhouse Road, Stamford, CT 06902 (203) 965-7000.



Camera Stabilizer

Feathercam Inc. is pleased to announce the release of its new HANDY-CAM camera stabilizer. Based on the principle that the human arm is an effective stabilizer, HANDY-CAM is designed to capture stable, action-packed, shots on the move.

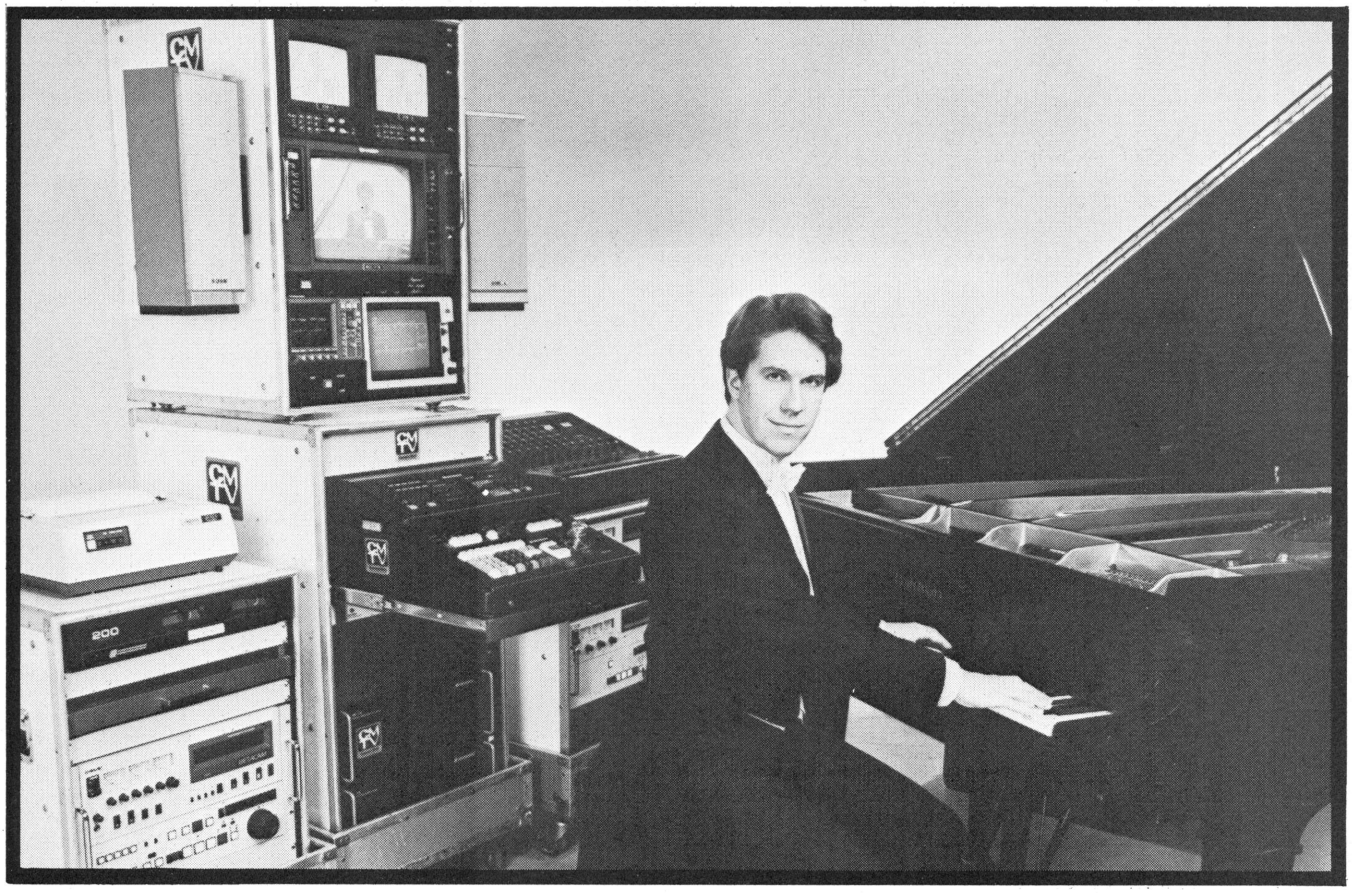
Constructed of light-weight materials, the compact HANDY-CAM will go where the others cannot. By means of an adjustable dovetail, HANDY-CAM will accept a wide variety of light-weight 16mm, 35mm, and video cameras including: Feathercam, our 35mm POV camera, and most Eyemo cameras. The retractable center post allows stable cinematography in confined areas.

The quick-change 24-volt rechargeable battery system also functions as stabilization counterweights. HANDY-CAM is ideal for skiing, horseback, motorbikes, or situations where a harness-type system would be too dangerous or bulky.

For further information, Contact Feathercam Inc., 7240 Valjean Ave., Van Nuys, CA 91406. Phone (818) 989-5222.

continued

CAMERA MART VIDEO SYSTEMS PERFORMS AT THE VAN CLIBURN PIANO COMPETITION.



Pianist: David Buechner

Of all the videotape production systems that could have been chosen to produce the Van Cliburn Piano Competition, the production team picked Camera Mart's Super System II for editing and the Betacam camera system using the innovative Ikegami HL-95 camera.

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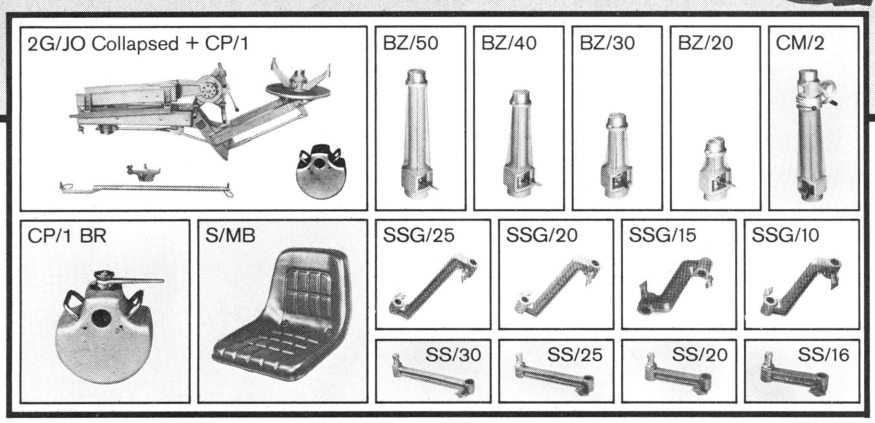

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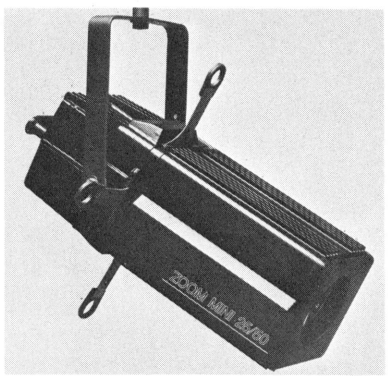
Telecine Equipment

Elmo Mfg. Corp. recently introduced its new low cost Telecine Film Transfer equipment.

Elmo's telecine equipment, including 16mm, Super 8mm, and 8mm telecine projectors, telecine screen units, and the Elmo Astron Video System with color video camera and 4-head VHS format cassette recorder, crosses the spectrum of formats and features adjustable speed settings. This means that by choosing the proper projector, the so called "Mickey Mouse" flicker effect is eliminated.

All the Elmo telecine equipment is high quality and extremely affordable. "I know we'll make believers out of the skeptics," says Vincent Marotti, vice president. "With our high quality equipment priced affordably, now is the time for making inroads into this lucrative market."

For further information write Elmo Mfg. Corp., 70 New Hyde Park Road, New Hyde Park, NY 11040.



New Zoom Ellipsoid Family

Colortran announces an impressive new line of performance Zoom Mini Ellipsoids. With zoom ranges of 15°–30°, 25°–50° and 40°–65°, this product line sets a new standard for the foreseeable future.

High efficiency and high light output are guaranteed by a totally new lamp and reflector design, achieved with sophisticated computer aid.

Several patents are pending for this revolutionary new product, including one for a unique accessory holder.

For more details, contact William Liento, (201) 438-4009, or Chris Martin in Burbank, California, (800) 843-1200. △

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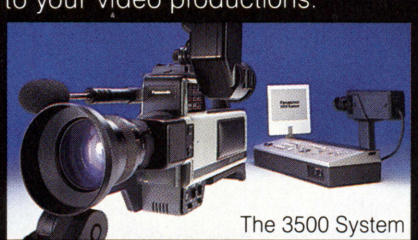
The 3500 System

Unlike other special effects systems, the 3500 system will do wonders for your productions without generating the large expense of studio time.

For multi-camera productions, use the WV-3500 camera and any standard camera. The WV-3500 includes a ⅔" Saticon® tube and genlock. Together with the WJ-3500 SEG you can wipe, fade and mix video signals. Horizontally or vertically. Or do the same with a camera and any video line input.

With the WJ-3500's titling camera and graphics card holder you can superimpose a variety of titles over your video images. You can even produce a title on a split screen and choose from seven different title colors and seven different color backgrounds.

And for easy audio monitoring and mixing there's a −70dB mike input and a −20dB line input.

The Panasonic 3500 System. Proof you don't have to go to special expense for special effects.

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For more information, call your nearest Panasonic regional office: Northeast: (201) 348-7620. Southeast: (404) 925-6835. Midwest: (312) 981-4826. Southwest: (214) 257-0763. West: (714) 895-7200. Northwest: (206) 251-5209.

Panasonic
Industrial Company

Thomas, Sbarge, Cartwright in stark futuristic setting which casts trendy tone of the picture.

Rebellion Burns *Inside Adam Swit*

Produced by Renée Missel, Gail Staydon & Paul Aratow
Directed by Roger Simon
Photographed by Don McAlpine, ASC

by Samir Hachem

The room is part of a magnificent sprawling house that overlooks the San Diego beach. It is, in fact, the living room. But with its stark white walls and severe high-backed black metal chairs, and a curious "brain" sculpture that sits at its center, with tubes and neon and rubber hoses falling out of it, the room would seem to belong in a contemporary art museum – or else a garage sale.

On one of the chairs is the very striking figure of actress Veronica Cartwright, her hair dyed an unnatural orange, clutching a telephone receiver, and visibly upset about something. She is shaking from the waist down. Standing next to the "brain" sculpture, and in the manner of a house dad tending to his favorite plant, actor Dave Thomas (playing Cartwright's husband) appears to be watering it. In walks their son, Raphael Sbarge, with his skinny redhead of a girlfriend, Page Hannah. He wants his parents to meet her, but they are too preoccupied and take no notice of the young girl at all (when they finally do, they refer to her as "another teenage delinquent"). The mother is outraged that he's taken the car without her permission, and her eyes bug out as she jumps to her feet to scold him. But this time the son isn't taking it any more. This happens to be the scene near the end of the movie, you see, when the son gets to tell his Yuppie parents off, telling them at last what he really thinks of their ridiculous house and trendy furniture and friends.

"You care more about your money than about your children," he charges.

When his mother threatens to call the police and press grand theft auto charges, his father picks up the cordless telephone and begins to dial. But the young man is not easily dissuaded. "SIT DOWN!" he commands. "I've had to listen to your bullshit for 17 years. You don't even realize I haven't said to you more than three words this year. Now SIT DOWN! Things have changed around here. I'm moving out. Every Sunday I'll come to check on your progress. If you start to

behave, then maybe, just maybe . . . But until then, I'm history around here."

It takes the very able cast and crew of the movie *Inside Adam Swit* from eleven a.m. to 4:30 in the afternoon just to get the master shot right. It's a complicated shot with five principals rising and moving and backing off (also the young hero's sister). With the abundancy of austere blacks and whites, and the occasional phosphorous red or pink in costumes, the look of the scene is always leaning towards the flat, and so the cinematographer Don McAlpine, ASC, has not only to worry about maintaining the source of light, as the day winds down, but also about the density of textures on the walls and the foregrounds.

The director, Roger Simon, has also noticed that his two main actors in this scene, Cartwright and Sbarge, have been straining their voices too much with each succeeding take. This is one of those chilly damp days in San Diego last winter. Many in the company had already contracted flu since arrival. Simon wants to conserve his leads' energy and vocal chords so they'll last the night if needed. At the futuristic dining table that Ferdinando Scarfiotti has designed for this ultra modern set, line producer (and co-writer) Renee Missel is offered a seat, but refuses it. "No, I can't," she says. On the table lie some makeup materials – cheek powder, Kleenex and Cutex nail polish remover. As a joke, someone advances the little bottle of Cutex towards the tense-looking producer. "Don't you grow nails?" she is asked. "Not while I'm shooting," she snaps back. "But after we're done, I'll grow them out to here (she points to imaginary extra inches in the air) to scratch out Tri-Star's eyes if they say we have to cut a scene here or there."

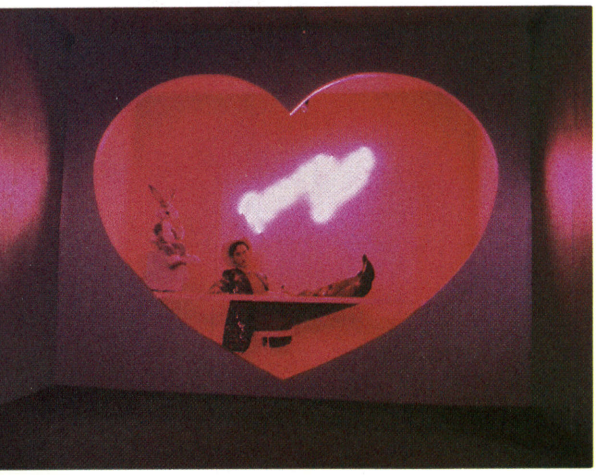
Inside Adam Swit is a seemingly modest youth picture, shot for a modest $7 million, with no name stars, over the span of two cold months last winter in and around San Diego. And yet, the tale of a young teenager who has fantasies of becoming an idealistic TV anchorman, and who grows up to see the greed and materialism of his parents' ways, sounds a lot more promising than the average youth comedy. In fact, *Inside Adam Swit* was always designed as a dark comedy, befitting the company of other sophisticated products of this sub-genre, movies like *Risky Business* and *The Sure Thing.*

Adam Swit (Sbarge) delivers ultimatum to his family.

For former Universal executive Thom Mount, *Inside Adam Swit* is the first independent project to see the light under his new banner, and he's chosen the ambitious new mini-major Tri-Star to release it. (His other independent project to follow will be the controversial and expensive Roman Polanski-directed *Pirates,* through MGM). Roger Simon, a novelist and a screenwriter *(The Big Fix, Busting Loose),* wanted a chance to direct his own movie. Renee Missel, a film producer *(The Main Event, Resurrection)* who'd been stuck in an executive job for the last year with only the power to say no, wanted to get back to writing and standing nervous on her feet. She and Simon were smart enough to know that "everytime you have a young hero in a comedy concept, they'll listen to you." They wrote a sophisticated script and "put children into it." They wrote it in such a way that they could do it for $10 million, union, or for $2 million, non-union, if no studio went for it. They took it to Mount. He went for it, and he, in turn, took it to Tri-Star.

For a picture as modest as this, and a first time director to boot, it may seem odd that Missel insisted on getting the best cinematographer and best production designer she could get. She chose Australian Don McAlpine, whose credits include *My Brilliant Career, Breaker Morant, Tempest, Moscow on the Hudson* and *King David,* and Italian Ferdinando Scarfiotti, whose work encompasses *Death in Venice, The Conformist, Last Tango in Paris* (and as visual consultant) *Cat People, American Gigolo, Scarface* and *Thief of Hearts.*

"It's not a standup comedy film," explains McAlpine, a softspoken man with a beard and a slight accent. "It's a dramatic film with comedy to it, and it's very well performed. However subversive, it's got a message. The attempt is to make the children fleshed out characters, while having the adults appear as caricatures, which is a reversal. But for me, I accepted the script because it was a positive story about kids concerned about materialism in a society that frowned on any oddball behavior."



Adam's vision.
Below: ***Simon and McAlpine confer.***

He accepted it also because he liked its director, Roger Simon, "a man of incredible intelligence and, I think, intuitive judgment. His opinions are solid, and he's definite about his sense of the dramatic and his visual concept." Refusing to do what he'd seen other first-time directors do, which was to surround themselves with lesser talent they could dominate, Simon opted for superior talent that would guide him into his job, and he did it in a very short time, according to McAlpine.

"I've worked with a lot of first time directors," he says, "and it's a very interesting war in maintaining control and dominating, making sure everybody's happy, all things that don't intrigue me anymore. The director-director of photography relationship philosophy I respect is the one where you get to challenge his ideas. In the first three weeks, Roger learned everything and I wasn't in a position to challenge him, but then I moved my position, and he was solid on his notions and concepts, and that's what's inspiring for a project."

The veteran cinematographer maintains that early discussions surrounding a new movie should not (and cannot afford to) involve themselves with the "look of the movie," but should emphasize what the "point of the movie" is. "The concept *IS* the movie," he says, "what you'll see evolves naturally, and you cannot impose outside elements on it because then you'll be faking it. You get to a remote Greek island location (for Paul Mazursky's *Tempest*) and you live and work with the Greeks, and that gives you some feeling, and from that you try to blend an interpretation of your concept, just as an actor would."

Choosing San Diego over Los Angeles and San Jose, Phoenix and the San Fernando Valley proved to have a significant influence over the look and pace of *Inside Adam Swit*. Simon rejected L.A. and its neighboring cities because of their overexposure in television movies of the week. San Jose turned out to be too wet and cold, Arizona showed more Southwest flavor and desert terrain than the story needed. "We wanted to do a satire of high tech and the dehumanization of high tech," says co-producer Missel, who with Simon interviewed high school students in San Diego and Pacific Palisades and the Valley before writing their script. San Diego, it turns out, has one of the highest growth real estate markets in the United States. Its look is clean and modern, and as production manager Richard Hashimoto correctly observed, its permit fees are cheaper ($1000 a day to rent out the big sprawling house as opposed to $2500 in L.A.) and its policemen and firemen restrictions are more reasonable.

"The first thing I think about is that the light must have some logic to it," says McAlpine. "It doesn't have to be absolute Southern California light, but we're not disguising that it is either. It's disturbing to an audience if there's no logic to where the light is coming from in any particular shot, and audiences are a lot more sophisticated than they used to be.

"We have a lot of scenes in a futuristic-looking high school, classrooms all glass, with lots of space, alienating and grotesque. It created for us monstrous problems. The biggest problem for me is to have to restrict a director from tracking past a certain point. I try to not put any limits on his ideas or options."

McAlpine is not a great lover of extreme wide angles, for instance, but *Inside Adam Swit*'s exaggerated modernism required some wide-angle depictions. "A lot of the scenes in the house I did with a 24 lens, some even with a 14, which is an immensely exaggerated perspective. But if you keep the shots symmetrical with the walls, they won't distort if you don't tilt or boom. The point is of course to create an emotion or an attitude without distracting."

The white walls and white pieces of furniture created a problem of another sort – one of texture. "You have to work really hard to keep the light off the walls and on the people so it can lend itself to the softest style of lighting. Otherwise, you end up with a blob instead of textured walls in your scenes," he says. Part of the starkness of the production's design is meant to disturb and disorient. And while laboring to attain a naturalistic fluidity for this film, McAlpine was equally aware of the need to keep some elements "cold and austere." Where he could, he says, he tried to "supplement the uncomfortable starkness" and let it hold its own tone.

The one notion he absolutely refused to submit to, however, was that he should dictate a style on the project. "To me, style means that you're going with a closed mind before you start. If

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there is such a thing, it comes from the script and the people and the locations. It gets itself figured out afterward. The first rule in the game for any cinematographer is that you're serving the director."

Stylistically, *Adam Swit* was approached with a point to each scene. Each scene served a dramatic point or purpose ("of course you always have those few scenes that the plot needs, but which are weak visually, but you do them the best way you can"), and the pursuit was to extract one element or one spurt of energy from each. ("Most times you don't know what the actors are going to do until they do it, and you have to augment what they do," he notes.)

Being a dark comedy about stark modern realities, *Inside Adam Swit* is also necessarily about fantasy, many fantasies, in fact. Throughout the unfoldings of the witty and smart plot, Adam imagines himself to be a psychiatrist analyzing his own parents, then as a James Bond type, winning the hearts of a whole harem of beautiful girls at the beach. He fantasizes about being a foreign correspondent in distant locations, chasing cars and fending off danger, and of presiding over a computer dating service and setting his oversexed sister up with a loser.

Addressing the different parts of Adam's fertile imagination was good fun for production designer Scarfiotti and DP McAlpine. "The set for the psychiatrist sequence was a hallway with a room at the end of it, black and white squares on the walls, all lit from soft lighting behind and in the ceilings, very funny, very surreal. Raphael did it with a Viennese accent, and we shot it from low angles, his parents confessing their greed to him. I think it's the most effective scene in terms of production and design."

For the parodying of a James Bond situation, "we used amber gels and Morrocan lights, and we used a Lightflex to prefog the film. It'll be pretty dark at the beach (McAlpine used Kodak negative stock 5294 for interiors and night exteriors, and Kodak 5247 for the rest.) and what the Lightflex does is give us a light source over the lens. It'll flatten it and get rid of all blacks, or reduce the contrast. And grays will turn pink. I used it in *Moscow on the Hudson* in the scene in which Robin and Cleavon get drunk on the street corner. It instantly fogs the blacks in the film, and slightly lifts them. I tested it a lot on *King David*, a very sombre picture, but we found we lost too much of the richness."

Panavision, for his money, has the finest cameras, and he tries to use them all the time. "But their lenses don't match that well. They have the best body of cameras, but the different organs of their lenses, in the past, have had measurable quality variability in one color over another and in resolution." For *Adam Swit*, the veteran cameraman was happy to get a whole set of new Zeiss lenses, which he commends for having "the same strengths and weaknesses all the way through. They're predictable and reliable, all uniform and made to fit the Panavision cameras."

All the film stock manufacturers are working at improving their film variation, he says, "but they don't inform us of these changes. So we make judgments about film stock that don't hold. They've got problems – they've got to produce a better stock, to sell it cheaper, to be more environmental in terms of being waste conscious. But there needs to be better communication too."

In fact, communication seems to be an ongoing concern in Don McAlpine's professional life and standards. A Steadicam, like a remote camera, like a video assist, can be as easily abused as used effectively. "The difficulty in anything is in human relationships between people," he says, "and film is a communicative art."

Samir Hachem is a Los Angeles-based writer and teacher whose by-line also appears in other film publications.

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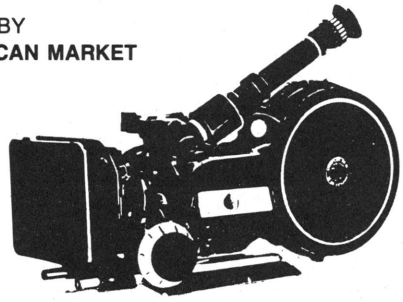

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Photos from the G. J. Mitchell Collection

Making *All Quiet on the Western Front*

by George J. Mitchell
ASC Associate Member

(The stills accompanying this article are from the author's collection, Marc Wanamaker-Bison Archives, and from the Kevin Brownlow Collection. They were made by All Quiet's *great still photographer, Roman Freulich.)*

ALL QUIET ON THE WESTERN FRONT, produced by Universal Pictures in 1930, is considered today to be a landmark motion picture. It received an Academy Award as the year's best production and ended up on every "10 Best" list that year including the National Board of Review. It was a huge critical and financial success.

Two brilliant film craftsmen were largely responsible for the success of *All Quiet:* Lewis Milestone, the director, and Arthur Edeson, ASC, the cinematographer. Edeson freed the camera from the limitations sound had imposed and Milestone brought back the dynamic style of film editing that reached a zenith with silent pictures but had been absent from the early talkies.

The story of how *All Quiet* reached the screen began when Carl Laemmle, the avuncular head of Universal Studios, bought the screen rights to Erich Maria Remarque's anti-war novel in 1929. Many in Hollywood thought that a movie could not be made from the book. It told of a group of youthful German soldiers thrown into the holocaust of World War I trench warfare. One by one they are either maimed or killed or otherwise destroyed by the war. The author had been a teen-age German infantryman. He wrote out of the anguish of his own experiences with an utter frankness and simplicity that was powerful and compelling.

Essentially episodic in content, it had no love interest, no suspense and anything but a glorious conclusion. Moreover, it was controversial. The memory of World War I was still vivid. The rampant anti-Germanism that had followed the entrance of the United States into the war was not easily forgotten.

Published in Germany in 1927 under the title *Im Westen Nichts Neues* (Nothing New in the West), it was an instant success selling over a million copies – no mean feat at that time in a Germany still trying to come to grips with her defeat in 1918. The book was translated into English and published in the United States by Little, Brown and Company and was soon on every best seller list.

Uncle Carl Laemmle, as he liked to be called, was certainly one of the most eccentrically lovable of the early movie pioneers. He had come to the United States as a penniless teen-age immigrant from South Germany. Possessed of natural shrewdness, diligence and thrift, Laemmle had prospered. He got into the motion picture business in 1909 at the age of 39 by opening an nickleodeon in Chicago. By 1912 he had formed Universal Film Manufacturing Company, which grew into Universal Pictures. In 1915, he opened Universal City Studios, described at that time as "the world's largest film manufacturing plant." But by 1929, Universal was in dire financial straits. Several expensive pictures had failed at the box office and the coming of sound had

produced more problems. Adding to these woes was Uncle Carl's odd-ball, impulsive way of doing business.

Laemmle's helter-skelter *modus operandi* sometimes resulted in lucky decisions. He elevated his 20-year old private secretary, Irving Grant Thalberg, to head production at Universal City. Young Thalberg brought order out of chaos and produced *The Hunchback of Notre Dame* with Lon Chaney in 1923, an enormous critical and box office success. (Thalberg went on to even greater successes at MGM.)

Convinced that his son, Carl Laemmle, Jr., had the same spark of genius, Uncle Carl appointed him to the same post when he had barely turned 21 – but Junior was no Thalberg. Junior was not a particularly difficult person. He gave people around him considerable freedom to act on their own. Despite his many detractors, Junior deserves credit for the production of *All Quiet,* and especially for his backing of Milestone and Edeson.

Carl Laemmle was certainly aware of the success of such war pictures as *The Big Parade* (MGM), *What Price Glory?* (Fox) and *Wings* (Paramount). With a proven best seller property like *All Quiet* in his hands, he reasoned there was a good chance for success.

The year 1929 was in many ways a transitional period for the motion picture industry. Two years earlier sound pictures had arrived and struck Hollywood with a vengeance. Filmmakers had a new and powerful tool to work with but they were still struggling with ways to use it. Technical problems were legion.

By 1928, silent pictures had reached heights of artistic perfection in photography and editing. This was set back immeasurably with the arrival of sound. For example, cutting sound to picture had not been mastered. Camera noise was another vexing problem. The ubiquitous microphone picked up the sound of the camera mechanism. The earliest solution was to place the camera and operator inside a small soundproof booth made of celotex. Soon dubbed "sound houses" and "sweat boxes," they effectively shut out camera noise but also rendered the camera virtually stationary.

Herbert Brenon, the first choice to direct *All Quiet,* had directed the highly successful *Beau Geste* in 1927. He wanted a fee of $125,000 which the thrifty Laemmle thought was excessive. Whereupon Agent Myron Selzneck suggested his client, Lewis Milestone, at a fee of $5,000 per week with a ten week guarantee. It was a shrewd move by Selzneck, then just starting a successful career as an agent. It took ten weeks to prepare the script plus 17 weeks to photograph and edit the picture. Milestone's take home pay was $135,000.

Lewis Milestone was born September 30, 1895 in Odessa, the port city on the Black Sea of the Ukraine. His father was a well-to-do manufacturer. Young Milestone received his high school education in Russia but in 1913 was sent to Germany to study mechanical engineering. Long interested in the theater, which was looked down upon by his parents, he soon lost interest in his studies. At Christmas time the following year, his father sent him money to come home for the holidays. Instead, Milestone decided to make his move. He and two fellow students visited the United States. His money soon ran out so he wrote his father for more. The elder Milestone answered, "Since you have taken it on yourself to visit the land of opportunity without my permission, suppose you remain and see what opportunity it affords you."

German soldiers trudge through a French village, which was constructed on the Universal City backlot.

A series of odd jobs followed until he found a job with a theatrical photographer at $7.00 a week. But, for the first time he was interested in what he was doing. He learned developing and printing, helped with the photography and learned to handle film from the standpoint of still photography.

After the United States entered the war against Germany, Milestone enlisted as a private in the Army Signal Corps in September 1917. He was first assigned to the Army's training film unit at Columbia University. After a time there, he was transferred to Washington where he worked in the laboratory and learned to cut film. Victor Fleming, Josef von Sternberg, Wesley Ruggles, Richard Wallace and Gordon Hollingshead, all well known for their later work in the motion picture industry, served in the same unit with him.

Following his discharge from the Army in December 1918, Milestone headed for Hollywood to work for Jesse D. Hampton, an independent producer he had met while serving in the Signal Corps. He worked in the cutting room assisting the film editor, splicing film, carrying film cans, sweeping the cutting room floor and running errands. An affable, pleasant

Top: ***Zasu Pitts is Lew Ayres' ailing mother in the silent and European versions of*** **All Quiet.** **Below:** ***Beryl Mercer is the mother in the talking version, the sequence having been re-shot because audiences laughed at Pitts' distinctive voice.***

young man, he was known to all as "Millie" – an affectionate nickname that stuck with him throughout his career.

He was soon noticed by Henry King, then directing a series of H.B. Warner programmers for Hampton, who made Milestone his general assistant and film cutter. This led to an association of several years with William A. Seiter, a popular director of comedies and family oriented program pictures. Milestone became his assistant and film editor as well as the scenario writer on several of Seiter's comedies. The two men became fast friends.

The original screen treatment for *All Quiet* was written by C. Gardner Sullivan, the veteran scenarist of many Thomas H. Ince films and the best of William S. Hart's westerns. Sullivan was a highly skilled scenario constructionist. He was especially noted for his skill at planning and laying out shots in advance of shooting. He became the chief scenario editor of *All Quiet.* Milestone brought in Del Andrews, who had worked with him at the Hughes unit, to help on the script. Andrews had been a film editor and was a sort of jack-of-all-trades. This being an early talking picture, it was thought necessary to bring in someone familiar with the spoken word. Hence, the addition of playwright Maxwell Anderson and Broadway producer George Abbott to the writing team. Milestone holed up with his writers in a house on Catalina Island next door to director John Ford and hammered out a shooting script.

Louis Wolheim, who had worked with Milestone in two pictures, was quickly cast as the front-wise veteran Katczinsky or "Kat." A broken nose gotten on the football field gave Wolheim a face that appealed to D.W. Griffith who cast him as the executioner in *Orphans of the Storm* (1921) and as the renegade Captain Hare in *America* (1924). Wolheim next scored in the successful Maxwell Anderson-Laurence Stallings play, *What Price Glory?* This led to a Hollywood contract and his association with Milestone.

George "Slim" Summerville, a much underrated comedian, was given the part of Tjaden. Summerville added some welcome comedy touches to an otherwise grim story. John Wray, a Broadway actor-playwright, became the sadistic drill sergeant, Himmelstoss.

The roles of the young school-boy soldiers went to William Bakewell as Albert Kropp; Ben Alexander (later Sgt. Friday's *Dragnet* partner) as Franz Kemmerich; Scott Kolk as Leer; Owen Davis, Jr. as Peter; Russell Gleason (replacing Allan Lane) as Müller; and Walter Browne Rogers as Behm. The latter's brooding face was used on all posters and 24-sheets for *All Quiet.*

The pivotal role of Paul Bäumer presented problems. Milestone knew that a great deal of the success – or failure – of *All Quiet* lay in this role of the chief protagonist. Phillips Holmes, a popular juvenile of the day, was considered, as was John Harron, younger brother of the Griffith star, Robert Harron. Both actors had a certain sensitive quality the part demanded but Milestone kept looking.

Paul Bern recommended a young actor who had played the juvenile in Greta Garbo's *The Kiss,* which he had just produced (incidentally, this was MGM and Garbo's last silent picture). He told Lew Ayres, the young man in question, to call Milestone. But somehow things went wrong and the boy could never get Milestone to either give him an appointment or call him back. Disgusted with his efforts to reach Milestone, Ayres joined the other hopefuls being tested in a scene of the men in a chow-line. Ayres stood out and got the part. His sensitive performance as the doomed young private was to skyrocket him to instant stardom.

In a bit of inspired casting, Milestone persuaded his pal, Raymond Griffith, to play the part of the French soldier Paul stabs to death in a shell hole and is forced to watch die. Griffith had been an important comedy star known as the "Silk Hat Comedian" in silent pictures. Unfortunately, he had suffered a vocal affliction as a child and spoke only in a hoarse whisper. With the arrival of talking pictures, Griffith turned to production and was already working as a producer at Warner Bros. when Milestone talked him into playing the part. Griffith delivered a poignant, unforgettable performance. Incidentally, he continued his career as a producer and worked in that capacity for many years at 20th Century-Fox where he was one of Darryl Zanuck's closest associates.

Enter Myron Selzneck again with George Cukor in tow. Cukor had been brought from Broadway where he had been successfully directing plays to work for Paramount as a possible director. He knew nothing about filmmaking but a great deal about acting. Selzneck persuaded Milestone to take on Cukor to help coach the young actors. He became more than just a dialogue director. His work on *All Quiet* has never received the recognition it deserves. He became one of Milestone's most valuable assistants. He immediately took the young actors in hand and began rehearsing them in their roles.

At the same time, the boys were delivered into the hands of Otto Biber, a former German army drill master. Biber instructed them in the art of the goose-step as well as other military exercises. To insure further accuracy, Hans von Morhart and Wilhelm von Brincken, both former German officers, were hired as technical advisers. Outstanding features of *All Quiet* were the authentic German and French uniforms and props Universal purchasing agents brought back from Europe. For example, in the early training scenes the boys are shown in the old Prussian blue uniforms and then later in field gray. Six complete artillery pieces were secured – not to mention machine guns, rifles and all types of military hardware and accoutrements. Such attention to detail helped establish the proper atmosphere.

Tony Gaudio, ASC was the initial cinematographer considered to handle the cameras on *All Quiet*. Together with Harry Perry, ASC, he had just wrapped up *Hell's Angels* for Howard Hughes. But in Tony's inimical words he'd "had enough of war" so he was not too enthusiastic about doing another war picture. Then Universal executives heard that Arthur Edeson had just finished a Western at Fox Studios and had never gone into a camera booth or sound house as they were sometimes called. The picture was *In Old Arizona*, the first of the Cisco Kid stories to reach the screen. It was "all talking" and was one of the first sound pictures to be made outdoors, a feat some of the early sound engineers said was not feasible.

In 1968 Edeson described how he got the assignment to photograph *All Quiet*. "I had just finished a picture at Fox for Frank Borzage and they had no assignment for me when I received a call from Roy

Louis Wolheim uses a boot to discourage a hungry rat. Harold Goodwin is in the foreground. In the background are Slim Summerville (left), Scott Kolk, Lew Ayres, Richard Alexander, Ben Alexander, Owen Davis Jr., and (extreme background, right) Russell Gleason.

Raymond Griffith is the dying French poilu and Lew Ayres the sorrowing youth who bayoneted him.

Hunter, head of Universal's lab.

" 'Art, are you available' he asked me."

"I'll have to ask Sheehan (Fox production chief) on that."

"He said we have a picture, *All Quiet on the Western Front,* and they tell me that you never go into a sound house.

"I said that was true. I have a very, very quiet camera which is my own.' It was a Mitchell (Standard). I didn't tell him what made it quiet. I told him nothing.

"Actually, I had taken the camera over to Gus, the mechanic at Mitchell's, and he put a micarta gear in the rear of the camera. He took some of the metal parts out and that made the camera 50 percent quieter than other cameras. And I also had a big padded bag we called a "barney" that I put over the camera to quiet it down more. I used this system to photograph *In Old Arizona.* Well, I went over to Universal to see Hunter. Hunter asked me if I would make a test for them. I said yes, I'd make a test for you, 'one in the sound house and one outside with my Mitchell camera covered with a 'barney' bag.

"I went over to Fox and borrowed one of the 'barney's' we had used on the pictures I had worked on there. Then I took all my gear back over to Universal to do the test. The test was the schoolroom scene where the German boys are lectured by their teacher to join the Army. I remembered it well because I picked out the boy (Lew Ayres) who played the lead. I asked "Millie" Milestone if that was the boy and he said 'yes,' and I think he was pleased with that. He was a very nice guy.

"I shot about 300 feet of film on each take I made both inside and outside the sound house. The little sound man we had there, Bill Hedgecock, never would turn up the gain on his sound panel until the camera got up to speed and the action and dialogue began. He was right alongside me. I told him later, 'you really saved my neck doing what you did.' He said 'There was need of going ahead and having the noise of the camera come out. I used to hear it there but as soon as the dialogue and action started you couldn't hear the camera. It was very, very quiet.' Well, that was real cooperation because a lot of sound mixers wouldn't do that.

"Incidentally, at that time the camera was turned by a flexible shaft connected to a motor that in turn was interlocked with the sound recorder. We were using the Fox Movietone (Western Electric) sound system, which was the best one.

"The next day all the Universal executives were in the big projection room to see the test I had made. The two Laemmle's were there, father and son. So was Martin Murphy, the production manager, Henry Henigson, the studio manager, and, of course, Roy Hunter. The room was crowded with people.

"The picture came on – about 300 feet – of the boys in the school room. There were two takes. Hunter had spliced both scenes together and that's it. When it was over, the lights came on and it was quiet for a few moments. Then someone said, 'Now put on the one that was made without going into the sound house.' 'They are spliced together,' Hunter answered. So they ran it again and when it was over Murphy and Henigson got together with Hunter to talk it over.

"Hunter came over to me and said, 'Arthur, come over to the office with me.' Then he asked me if I'd make the picture and I said 'yes' so we came to an agreement. They paid me $600 a week."

"You couldn't have made a picture like *All Quiet on the Western Front* using those sound houses. I had never gone into one of them. You couldn't get good photography. You couldn't light. Now this picture was at least 50 percent exterior war stuff so my camera could easily handle it. We also shot the battle stuff silent. I often had as many as six cameras turning on those scenes. Sometimes on the interior scenes when the camera moved in close I placed a big piece of plate glass between it and the actors so there were no big problems with camera noise."

"We went on location for about six or eight weeks down in the hills above Laguna Beach. They built roads and a concrete ramp for the big orange colored camera crane that Hal Mohr had built for them a few months before. It ran alongside the trenches they had dug for the battle stuff. It was really a big show."

Edeson laughingly recalled that after working a number of days in a dugout the Orange County Board of Health inspectors shut them down until it was cleaned up. "It was just like a real war except that part of the day the extras which they had gotten from an American Legion post in Santa Ana would change from their German uniforms into French uniforms. They would be fighting themselves. We never had

more than a few hundred extras at any one time. Usually, we had about 150 on hand each day.

"I had photographed another war picture for First National, *The Patent Leather Kid,* which Al Santell had directed. It was made at Camp (now Fort) Lewis, Washington a couple of years before *All Quiet on the Western Front.* Without the experience I got on that picture, I don't think I could have done *All Quiet,* which had many of the same problems in the photography of the battle scenes.

"They had gotten some tents from the National Guard for the extras to live in down there on the Irvine Ranch. Except for not using real bullets, we might as well have been in the war. There were some close calls with explosions. Our 'powderman' was working on another picture at night so he didn't get much sleep. He was sometimes a little jittery. Once Millie was hit by some debris from an explosion and was knocked unconscious. He was right by my camera. After that we started wearing those big steel German helmets."

The only fatality was not caused by any of the explosions but took place on the shell torn French village set at Universal City when an extra was thrown off an artillery cassion against the corner of a building.

In addition to the Irvine Ranch and Universal City, other locations used were: Sherwood Forest and Malibu Lakes in the San Fernando Valley, and the so-called "40 acres" backlot of the RKO Pathé Studio in Culver City (where *Gone With the Wind* Atlanta and Tara exteriors were later made). Captain Charles D. Hall, who had served in the Canadian Army during the war, and William R. Schmitt designed the sets. One of the most interesting was the re-creation of a German Army *kaserne* (barracks), complete with a quadrangle for drill, built on the Universal City back lot. This set was further enhanced by a bird's eye view shot created by special photographic effects cinematographer Frank Booth. Some of his other optical work and matte shots are so well executed they pass by virtually unnoticed.

All Quiet on the Western Front opens with the sub-title (taken almost verbatim from the forepage of the book) that sets the tone for the picture:

> *"This picture is to be neither an accusation nor a confession, and least of all an adventure, for death is not an adventure to those who stand face to face with it. It will try simply to tell of a generation of men who, even though they may have escaped its shells, were destroyed by the war."*

(Unfortunately, Universal deleted this title after the initial release and substituted instead a list of all the awards, including the Academy Oscar, the picture had won.)

The picture then begins somewhat innocuously. An elderly janitor is preparing to unlock a door while talking to the charwoman scrubbing the floor.

Arthur Edeson, in center on crane, deadened camera noise with heavy blankets, thereby restoring camera mobility. The crane was designed by director Paul Fejos and cinematographer Hal Mohr, ASC, for the picture* Broadway *in 1929. The photo was made on the Irvine Ranch, near Laguna Beach, California.

"Thirty thousand," he says to her.

"From the Russians?", asks the woman.

"From the French. We capture that many from the Russians every day," he answers as he opens the door revealing marching spiked helmeted German soldiers in 1914 uniforms. A marching military band seems to catch the nationalistic fervor of the crowd as Edeson's camera cranes upward and pulls back through a window. Inside, an elderly schoolmaster (Arnold Lucy) is exhorting his students to enlist. In a series of sharp vignettes, Milestone introduces the young men the picture concentrates on: Kropp, Leer, Kemmerich and the main protagonist, Paul Bäeumer.

We follow the boys through their recruit training and see them suffer at the hands of their sadistic drill sergeant Himmelstoss. His particular pleasure is to march his young charges into a muddy, ploughed field and have them "advance and lie down."

Ordered to the front, they pass through a shell torn French village at the railhead and hear the scream of enemy shells for the first time. Inside a deserted factory, beautifully lit by Edeson in deceptive low-key, the boys meet Tjaden, Westhus (Richard Alexander), Detering (Harold Goodwin), and somewhat later the incomparable Kat who arrives with a whole pig they are all soon devouring. That same evening they are ordered front for a wiring fatigue.

They get their first instructions of how to behave under shell-fire from Kat as they pass through a wooded area. Edeson has skilfully lit this sequence day-for-night but it is so convincingly done it seems like actual darkness. His camera trucks along in front of the soldiers, pausing when Kat emphasizes an

Carl Laemmle, president of Universal, and the author, Erich Maria Remarque, come to terms in 1930. (Photo courtesy of Kevin Brownlow).

important point, moving once more when they move. "I'll give you all clean underwear when we get back," Kat tells them.

Edeson lit the scenes of the men putting up barbed wire night-for-night. His lighting of these scenes is very effective. When an enemy bombardment suddenly erupts, the men scatter for cover. In one very effectively lit low-key shot – the light level is *extremely* low but quite visible – a man jumps into a shell hole as an explosion erupts. He screams out in pain, "I'm blind. I can't see," and blindly staggers towards the enemy lines where he is cut down by unseen gunfire. One of the boys runs after him, picks him up and staggers back to cover. Kat severly upbraids him for needlessly exposing himself. "But it's my friend Behm," the boy says. "It's just a corpse now," Kat admonishes, "no matter who it is." It is a harrowing scene but sets the tone for what is to follow.

Trapped in a dugout for days by the heavy enemy bombardment, the terrified, shell-shocked boys are somehow held together by the iron will of Kat. Edeson has given these scenes in the dugout an especially realistic look. His low key light level is very effective in catching the claustrophobic effect of the incessant bombardment.

Suddenly the bombardment lifts and the men run outside to man their positions on the trench fire step. Edeson's camera travels over the trenches, easily picks out Paul (whose helmet spike has been shot away – an effective trick Milestone uses to single out his key character). French shock troops are close to the German barbed wire. Machine guns go into action. Now Milestone and Edeson deliver some of the most effective scenes in the picture. Edeson's camera, mounted on the big crane and swung low to the ground, moves rapidly across and in front of the charging French infantry. Milestone intercuts these shots with short cuts of the machine guns firing, French soldiers are mown down by the terrible machinegun fire as they race toward the German trenches. The tempo and speed of these shots increases. At one point we see a grenade explode in front of a charging French soldier. When the smoke clears only the hands remain suspended on the barbed wire almost as if in prayer. Paul turns his face in horror against his rifle stock.

The French reach the German trenches and leap onto the defenders. Hand to hand combat breaks out. The French are driven out. The Germans counterattack only to be stopped by French machine guns in a series of shots almost identical to what has just transpired. The battle is a stand-off.

This particular sequence has been justly praised for Milestone's mastery of cutting. Trained in the editing tradition of D.W. Griffith and greatly influenced by the so-called "montage" technique of the Soviet directors of the mid-twenties, Milestone and his film cutters (Edgar Adams and Milton Carruth) created some powerful screen imagery. And, Edeson's cameras caught every violent moment of combat. Although Edeson photographed virtually all of these scenes silent, the addition of sound is skilfully and realistically applied so that one is never really conscious of the deception.

According to Milestone, Junior Laemmle complained about the battle footage he was seeing in the dailies back at Universal City. "All I see is guys running to the left and guys running to the right. Where is the battle stuff?" Milestone told him he'd have to wait. "I'm not going to wait. I'm bringing you back to the studio right now."

Milestone went to work virtually around the clock sleeping in his chauffeur driven car between his home and the studio. Finally, a cut was finished about three o'clock one morning. An exhausted Milestone invited Paul Whiteman, the band leader, working in an adjoining cutting room on his own film, *King of Jazz*, to see what he and his cutter had wrought. There was a bit over a thousand feet of spliced workprint but with no sound. When it was over, Whiteman was overcome. "If the rest of the picture is anything like this, you've got the winner of all time." (From an interview in 1968 with Kevin Brownlow.)

In another powerful sequence, German infantry are attacking through a church cemetery. They are stopped by heavy artillery fire and take cover in some of the graves that have been opened by exploding shells. A coffin, torn out of one of the graves, is flung over Paul who has been slightly wounded. In a panic he jumps into another shell hole. The enemy counterattacks. Paul crouches in the bottom of the hole, draws his trench knife and feins death. But the counterattack breaks down and the French retreat. Suddenly a French soldier jumps into the shell hole with Paul. In a panic Paul gags the man with one hand and blindly stabs him in the throat with the other. Unable to leave the shell hole because of heavy fire, Paul is forced to watch the Frenchman die. The ordeal continues through the night. Morning comes. The Frenchman is dead. Paul in remorse begs the dead man's forgiveness. Mercifully, night

The charge into the graveyard, filmed at Universal City.

finally falls and Paul escapes back to his own lines.

Arthur Edeson has treated the passage of day-to-night and from day-back-to-night with a subtle but realistic lighting style. At night flashes of gunfire light up the shell hole. In the morning Edeson's camera catches the dead Frenchman's face in an unforgettable close-up. His dead eyes are open and stare into nothing. A whiff of smoke from the battlefield drifts into the frame. We see Paul's anguished, pleading face. It is a terrible moment put on film with great artistry by Edeson.

There is a romantic idyll with three French peasant girls. Paul, Albert and Leer steal over the canal that separates their bivouac from the girls. As an inducement, they have brought along food. We hear – but don't see – Paul and one of the French girls make love. The camera moves slowly about the moonlit room. The lighting is soft and in a low key.

Paul and Albert are both wounded and taken to a hospital behind the lines staffed by Catholic nuns. Edeson uses a higher lighting key for these scenes. Albert's shattered leg is amputated, unknown to him. When he comes out of the anesthetic, he complains of pain in his toes and suddenly remembers the complaint was the same he had heard made by another comrade in the same situation. Edeson's camera adroitly captures the pathetic moment when Albert tilts a small hand mirror in such a way that he sees with horror his leg is gone.

For Pauls' convalescent homecoming Edeson has lit the scene in a high key. Bright sunlight streams through the front door as Paul enters his parents' home. His sister runs to embrace him. "Paul's home," she tells the mother, who is bedridden. As Paul realizes that he can no longer fit into life on the home front, the mood of the lighting becomes more subdued.

When Paul returns to his comrades at the front he discovers that only Tjaden and Kat are left. All the others have been either killed or wounded. And on the day of his return, Kat is killed.

Then comes the ending that *All Quiet* audiences long remember.

The author gave few clues concerning Paul's death. Milestone thought of several possible endings but rejected them one by one. The date of the world premiere had been set and the picture had to go in for negative conforming. Pressure from the front office was intense. Junior Laemmle threatened to take the whole thing away from Milestone.

Edeson was committed to another picture and had moved on. Milestone now had the services of Karl Freund, ASC, as cinematographer. Freund had just joined the camera staff at Universal City after distinguished work in Berlin's great Ufa Studios. Freund remembered an earlier scene where Paul pauses by his butterfly collection when he was home on leave. This gave Freund the idea for the ending that he and Milestone shot that afternoon on the back lot at Universal City.

We see soldiers bailing water from a ruined trench. It is a bright day and is quiet on the front. Only the faint sound of a harmonica can be heard. Paul, on guard, is day dreaming in his trench. Suddenly, he sees a lone butterfly land on a shell casing just outside the parapet. He carefully reaches for it, momentarily forgetting the ever present danger. Cut to a shot of a distant French sniper who suddenly emerges from behind a log with a scope-mounted rifle. Back to Paul as he leans outside the trench reaching for the butterfly. The French sniper draws careful aim on Paul. His hand moves closer to the butterfly when suddenly there is the sharp whine of a shot. Paul's hand (actually Milestone's) jerks back, relaxes in death. The harmonica suddenly stops and there is a cut to sunlight streaming through the trees as the music comes up. It is one of the screen's most powerful, well remembered moments.

With such an unforgettable ending one wonders why someone at Universal decided to go one better. In a tear jerking symbolic epilogue, reminiscent of D.W. Griffith at his worst, we see a ghostly file of all of the boys marching obliquely away from the camera and looking back at the audience with a sad, haunting look – the whole scene being superimposed over a sea of white crosses on a shell torn battlefield. Some of the pacifist advertising appearing in magazines at that time probably influenced the addition of this scene.

When *All Quiet* was sneak previewed it unfortunately followed a comedy in which Zazu Pitts appeared. Miss Pitts, a splendid tragedienne as well as a great comedy actress, played Paul's sick mother. Despite her fine, sensitive performance, audiences snickered. It was the unwanted laugh that every filmmaker fears. Junior Laemmle panicked and despite Milestone's pleas ordered the scenes re-shot with another actress. Beryl Mercer, a plump actress of that period famous for mother roles, appeared in the re-takes. (Zazu Pitts' scenes were left in the silent version which Universal had prepared for theatres not yet wired for sound and also in some of the prints shipped abroad.)

Despite reports to the contrary, *All Quiet* was well received when it opened in Germany in 1930. It was denounced by Hitler, then a rapidly rising leader of the Nazi Party. His SA and SS hooligans released rats, snakes and stink bombs in theaters showing the picture. When Hitler finally came to power in 1933, he banned the picture outright. Remarque, who had already left his native Germany, went on the Gestapo's wanted list.

Over the years, *All Quiet* has been re-issued several times. It has suffered the fate of many fine pictures by having many key scenes deleted. The TV tape cassettes that are now available appear to have been made from the 1939 re-issue and are complete except for a few scenes that were apparently removed to cut the running time. The mutilated prints that occasionally turn up on commercial TV are a sad parody of the 14-reel version that stunned audiences in 1930 and generated world wide praise.

All Quiet on the Western Front is still the yardstick by which all great war films are measured.

Edeson...

Arthur Edeson is one of the small group of cameramen who founded the American Society of Cinematographers in January of 1919. Over the years he served on the A.S.C. Board of Governors and was a past president (1949-50). At the time he photogaphed *All Quiet* he was one of the top rated cinematographers in the motion picture industry. It was a position he consistently maintained until his retirement int he 1950's. A short, handsome man, he was known for his meticulous craftsmanship and his artistic integrity. His sometimes imperious manner earned him the nickname of "Little Napoleon."

He was born in New York City October 24, 1892. After attending the College of the City of New York, he went to work as a negative retoucher and platinum printer for various New York portrait photographers. The work was often seasonal and sporadic so he decided to "try something else." He had worked as an apprentice portrait photographer so he thought he might land a job in one of the motion picture studios in nearby Ft. Lee, New Jersey. One day in 1911, he crossed the Hudson river and applied for a job at the Eclair Studio hoping for some sort of photographic work. Instead, he was hired as an extra by director William Haddock at $3.00 a day. This continued for a short time with Edeson supplementing his income by taking photographs of some of the actors which they could use in getting other acting jobs. Barbara Tennant, Robert Warwick and Alec B. Francis were among the players he photographed. This led to a job in the Eclair lab and the additional assignment of still photographer on the Eclair productions.

John van den Broek, Eclair's top cameraman, introduced Edeson to cinematography. "John was a Dutchman and, I think next to Billy Bitzer, was the greatest cameraman in the business," Edeson recalled in 1968. "He was Maurice Tourneur's cameraman, whom I think was next to D.W. Griffith in screen direction. John had a wonderful feel for composition and lighting and in those days the sun was our primary light source. The Eclair Studio was glass enclosed, like a big greenhouse. John used diffusers and soft reflectors to achieve some remarkable effects.

"John took me under his wing and taught me what he did and how he did it. I learned more and more from this wonderfully gifted, warm-hearted man." Tragically Van den Broek was accidentally drowned several years later while filming a Mary Pickford picture for Tourneur.

Director George Sargeant gave Edeson his opportunity as a cameraman in 1914 by assigning him to *A Gentleman From Mississippi* starring Tom Wise, a noted stage actor of the day.

"Eclair was a French company so the cameramen were mainly French. Rene Guissert, Lucien Andriot and George Benoit were three who later became A.S.C. members. I believe I was the first American to become a first cameraman there.

"We went on location to Natchez, Mississippi. It was a wonderful opportunity for me to work on a beautiful Southern estate with great oaks and

The night wire patrol.

hanging moss. The photographic opportunities were just there for the taking. I used a Pathé studio model camera with an f/3.5 Hiliar 50mm lens. Prior to and afterward I used an Eclair Gillon which the company built in their shops in France.

"To me the lens is the most important thing about a camera. There are really only three things you need beside a good camera mechanism to photograph a picture: a lens, some good film, and your own ingenuity."

Eclair evolved into World/Peerless Studios, a group put together by J.E. Brulatour, Eastman Kodak's sales representative. Edeson remained there until 1918 when he was drafted into the Army. A bout of pneumonia sent him to California for his health.

"I hated to leave New York and Fort Lee, but it turned out to be a fortunate move for me," he said. His friend, Charles Rosher, ASC, recommended him to Douglas Fairbanks Sr. to photograph *The Three Musketeers* in 1920. Other pictures followed: *Robin Hood* (1922), directed by Allan Dwan, and *The Thief of Bagdad* (1924), directed by Raoul Walsh. *The Bat* (1926), directed by Roland West, was notable for low key effect lighting and Edeson's clever use of low camera angles to enhance dramatic effect. His assistant (and pupil) for several years during this period was the great Gregg Toland, ASC, remembered today for his masterful photography of *Citizen Kane* (1941).

Edeson's name appears on the credits of many famous films made during the 1930's and 1940's: *Frankenstein* (Universal), the original *Mutiny on the Bounty* (MGM), *Sergeant York, The Maltese Falcon* and *Casablanca,* all for Warners. He received Academy nominations for *All Quiet* and *Casablanca.* In 1954, he received the George Eastman House Award for his overall contributions during the silent period. △

All Quiet on the Western Front
A Universal Picture

Presented by Carl Laemmle; *produced by* Carl Laemmle, Jr.; *directed by* Lewis Milestone; *from the book by* Erich Maria Remarque; *screen play by* George Abbott, Maxwell Anderson, Del Andrews; *story editor,* C. Gardner Sullivan; *director of photography,* Arthur Edeson, ASC; *associate director,* Nate Watt; *supervising editor,* Maurice Pivar; *film editors,* Edgar Adams, Milton Carruth; *recording supervision,* C. Roy Hunter; *art directors,* Charles D. Hall, William R. Schmitt; *dialogue director,* George Cukor; *musical synchronization,* David Broekman; *sound recordist,* William Hedgcock; *photographic effects,* Frank H. Booth; *assistant cameramen,* Allen Jones, Robert J. Bryan; *added photography,* Karl Freund, ASC; *mechanical effects,* Walter Hoffman; *technical advisors,* Hans Von Morhart, Wilhelm Von Brincken; *second assistant director,* Charles Gould; *still photographer,* Roman Freulich; *make-up artists,* Jack P. Pierce; *Movietone sound system; titles for silent version,* Walter Anthony; *narrator, 1939 version,* Graham McNamee. *N. Y. premiere, Central Theatre, April 29, 1930; Released August 24, 1930. Running time, 138 minutes (12,423 feet); silent version with synchronized music and sound effects, 15 reels.*

Cast

Paul Baeumer, Lewis Ayres; *Katczinsky,* Louis Wolheim; *Himmelstoss,* John Wray; *Gerard Duval,* Raymond Griffith; *Tjaden,* George "Slim" Summerville; *Mueller,* Russell Gleason; *Albert,* William Bakewell; *Leer,* Scott Kolk; *Behm,* Walter Browne Rogers; *Kemmerich,* Ben Alexander; *Peter,* Owen Davis, Jr.; *Kantorek,* Arnold Lucy; *Westhus,* Richard Alexander; *Mrs. Baeumer,* Beryl Mercer (*in silent version,* Zasu Pitts); *Mr. Baeumer,* Edwin Maxwell; *Detering,* Harold Goodwin; *Miss Baeumer,* Marion Clayton; *Lt. Bertinck,* George Pat Collins; *Ginger,* Bill Irving; *Ginger's Assistant,* Vince Barnett; *Poster Girl,* Joan Marsh; *Suzanne,* Yola D'Avril; *French Girl,* Poupee Androit; *French Girl,* Renee Damonde; *Herr Meyer,* Edumund Breese; *Hammacher,* Heinie Conklin; *Sister Libertine,* Bertha Mann; *Woman Who Visits Hospital,* Bodil Rosing; *Hospital Orderlies,* Tom London, Ernie Adams; *Young Recruit,* Maurice Murphy. (Fred Zinneman *and* Robert Parrish, *later noted directors, appear as extras*).

Statistics

Production started November 11, 1929 (Armistice Day) and continued for 17 weeks. Total production cost: $1,250,000. Filmed at Universal City Studios, Irvine Ranch (Laguna Beach), RKO-Pathe Studios (Culver City), Malibu Lakes, Sherwood Forest (San Fernando Valley).

Photos by Mary Ellen Mark

STREETWISE

A True Tale of the City

Produced by Cheryl McCall
Director/Cinematographer Martin Bell

by Henry Baker

Within a three-block radius of Pike Street in downtown Seattle, the young runaways and cast-offs of *Streetwise* go about their daily routines – spare-changing, hanging out, running drugs, getting tattooed, fighting, pimping, and prostitution. The kids that make up this lively, self-enclosed world can provide a certain amount of emotional support for one another against the harshness of their everyday reality. But the film makes it clear that this is a sorrowful and distinctly unromantic existence.

Martin Bell, the director and cinematographer of *Streetwise*, had an extraordinary task to perform: to capture the lives of a dozen or more street kids to whom adults were objects of hostility and suspicion. The teenagers themselves were victims of broken and/or abusive home lives and saw the street as the only means of escape. Once there, they were too afraid to leave a new existence to which they had become accustomed.

Streetwise grew out of the July, 1983 Life Magazine story "Streets of The Lost," written by Life staffer Cheryl McCall and photographed by Mary Ellen Mark, who is Bell's wife. The article chronicled the lives of a group of young street dwellers in Seattle's tenderloin, many of whom became the subjects of the film: Rat, an undersized 17-year-old who is knowledgeable in the rules of dumpster diving; Tiny, a skinny young prostitute of 14 who turned her first trick before reaching puberty; Patty and Munchkin, a couple trying to believe in the romance of their relationship despite the brutality of the world around them.

The inspiration for the film came from Ms. Mark during a session with Rat.

"Mary Ellen watched him roller skating through the halls of the abandoned hotel he lived in," Bell said. "She thought

'Wouldn't this make a terrific film.' I was in England working on a film when she called me up with the idea for our doing the project." Bell was skeptical about the possibility of getting financing for such a production, but, by mid-August, 1983, the initial money came from singer Willie Nelson and his wife Connie – both good friends of McCall's – and from the filmmakers themselves. The three knew that they had to move quickly before their potential subjects left Seattle or were arrested or murdered.

At the beginning of shooting, McCall, who acted as producer, and Mark had an advantage over Bell as he had never met any of the kids. Being both cameraman and director put him in a prickly position, but he dealt with getting the trust and cooperation of the kids "just by being there long enough," he said. "From the very beginning we walked onto the streets with the cameras. You never make any pretense that you're doing anything other than making a film. But you don't make a big deal of it either; it's best to keep things very low-key.

"Eventually, the ones that are going to accept your presence come to your side. Those that clearly do not want to be filmed – because they're selling drugs and the like – you don't film. We not only had to shoot around them but we also had to be seen *not* filming them to gain the trust of everyone on Pike Street. Once you have that trust, you can't break it. One day, Chrissie, one of the kids, objected to being filmed. So I opened the magazine and gave her the exposed stock. She was quite surprised by this gesture, but it made her realize we weren't going to exploit her."

Bell decided to shoot in 16mm rather than 35mm for the sake of portability and his shoulder. He used an Arriflex 16-SR – "a beautiful camera," he said – equipped with Zeiss high speed lenses. As most of the filming had to be done with available light only, two new Kodak film stocks, Nos. 7291 and 7294, were obtained and utilized to excellent results. Bell credits the stock as a major factor in the shooting of *Streetwise*: "Kodak designed a film emulsion that enabled us to film on the street at night with either no extra lights or with just sodium lighting."

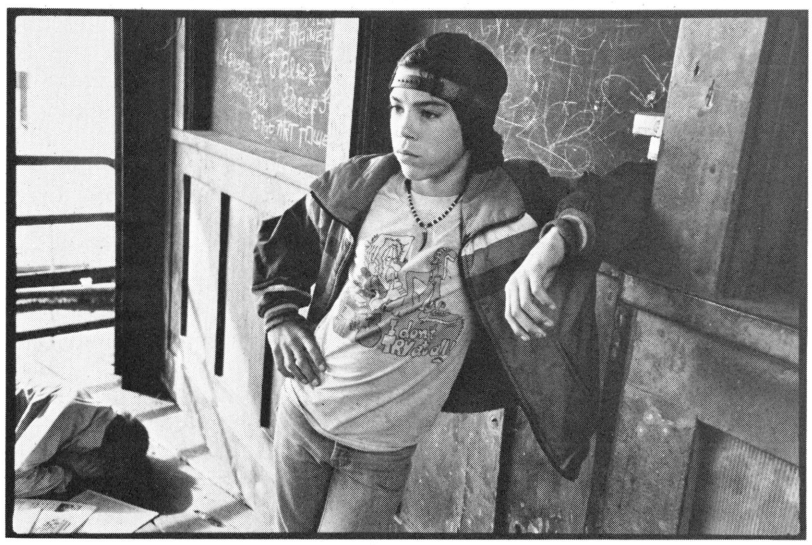
In consideration of the restricted light sources, Bell generally filmed at f.8 to f.16 during the day, and then would shoot wide open for interiors and at night. "It's difficult because when you go to a 35mm blow-up, the film has to be in perfect focus. Doing this at f.1.2 isn't easy when everything in camera range is moving and you're moving with the camera on your shoulder."

Only two scenes in *Streetwise* are actually lit – one, involving Patty and Munchkin in their delapidated apartment discussing hair dye, was done with a single arc light bounced off the ceiling; the other caught Lulu, a tough 19-year-old lesbian who protects many of the kids, in the midst of a loud argument in a parking lot at night. For this situation, Bell employed a battery light attached to the Arriflex. Remarkably enough, the remaining night sequences were shot only with available light. In one instance, the illumination came from an unexpected source.

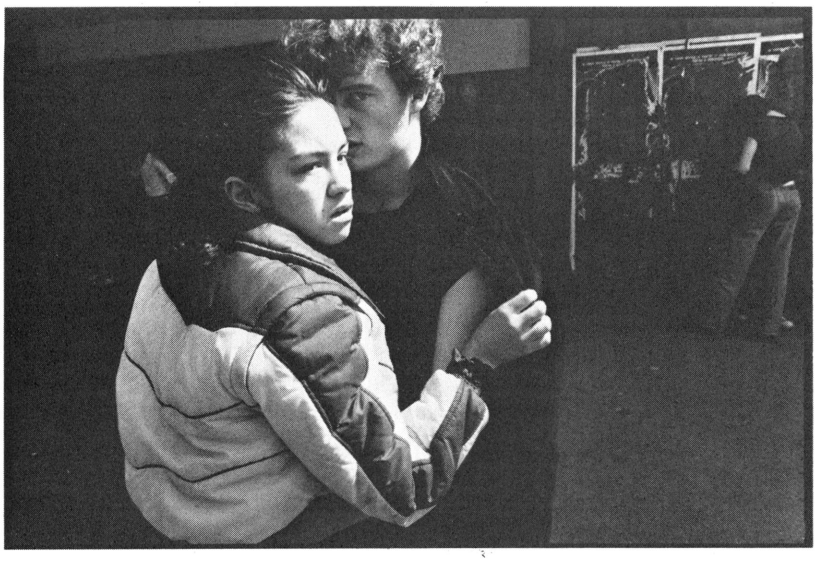
Bell, Mark and McCall had no particular trouble with the local police, who, Bell says "were as caring and helpful as they could be within the system they worked in." The exception was the vice cops who wanted to infiltrate the kids' world to enforce the drug and prostitution laws. Afraid that Bell and his camera would blow their cover, the vice cops asked him to stop filming them one night, but Bell continued to do so. "The truth of it was that the kids all knew who the vice cops were. They have developed a sixth sense about these things," Bell said.

One evening the filmmakers arrived on the scene as Patrice, a teenage pimp, was being arrested. The vice cops were prepared for the camera, or so they thought. "They'd learned in their police training that if you turn a flashlight into a video camera, the tube burns out immediately. But these men didn't realize that I was using the old (film) techniques, so we got a beautifully lit scene of the arrest."

Despite the excitement of documentary filmmaking at times such as this, the success of the shoot was long in coming. During the first three weeks of filming there was little or nothing of interest that had been done. The kids' initial reaction to the camera was predictable – they would mug and perform. But they would soon get bored and, according to Bell, would have to go back to their lives and daily routines. "You have to spot their routines and slip into



Opposite page: *Tiny, the Waif.* Left: *The Rat, guide to the streets.*



Patti and Munchkin, Pike Street lovers.

them; it takes a while to see these things." The fact that Bell shot a good portion of *Streetwise* from a distance using a Zeiss zoom lens made such a discovery even more difficult.

The first break came in the sequence where Tiny visits her alcoholic mother working in a local diner. After giving her daughter a free cheeseburger, the woman goes with Tiny back to her house. During the afternoon visit, the two talk about make-up and then slide into a telling discussion about Tiny's stepfather, who wants no part of the girl. The filming in the house took two hours, but Bell and his crew caught for the first time what they wanted, a natural, unforced, and unaffected glimpse of the lives of these people, as well as their perceptions of those lives. After this initial triumph, the filmmakers knew they had been accepted into this closed world.

Bell is a native of Yorkshire, England and his background as a cinematographer encompasses wildlife documentaries for National Geographic, short rock films, and the eccentric British feature, *Sir Henry at Rawlison End*, with Trevor Howard. From such experience, Bell felt he would be able to bring strong film techniques to a genre generally known for its rough camerawork. The crew on the street consisted of Bell with the camera, his long-time associated Keith Desmond on sound, two assistants, and Mary Ellen Mark to help keep an eye on what was happening on the street. Cheryl McCall would both work on the street and obtain and organize the various permissions and releases required to film in specific places, such as detention centers, prisons, and government offices.

Keeping track of the kids themselves as well as their activities posed a challenge to the filmmakers. Desmond solved it by modifying his Nagra 4 recorder to allow input from five separate microphones without the necessity of a mixer. The kids would have a tiny Micron radio mike attached to them – using Dr. Scholl's corn plaster – and Desmond could record their voices without the interference of background noise from the busy street. Bell, Mark, Desmond, McCall, and the assistants would communicate using Motorola MX 320 headpiece radio mikes so no one else could hear what they were saying. "If Mary Ellen were across the street she could tell me about something going on without having to shout. We got incredible material this way; the set-up allowed us a great deal of mobility," Bell said. The range on the Motorolas was two to three miles.

One astonishing moment in the film was captured in such a way. The camera assistant, Doug Palligrino, saw Tiny across the street moving toward a car carrying an elderly "john." Bell was nearly a block away looking in an entirely different direction. Palligrino alerted Bell as to what was happening, and Bell unobtrusively moved into position to catch Tiny getting into the car. He said, "If someone had shouted, 'Hey, Tiny's about to turn a trick!' we'd never have gotten it. The guy in the car would have driven off like a flash."

The quality of the material notwithstanding, the production of *Streetwise* was as emotionally trying for all concerned as it was physically exhausting. In situations like the above, Bell, Mark, and McCall had to resist the strong impulse to impede on the action and keep the kids from doing further harm to themselves. They realized, as documentarians, that this would not help the film nor would it change the lives of the kids in any significant sense. Bell asserts that "we wanted to show these teenagers as they are, without apology or sentimentality. Behind the worldly-wise exteriors, they are still kids."

Bell, Mark, and McCall decided from the beginning that the kids should tell their own stories, and that the film should be fashioned in a narrative form from this material. Such an approach required the special photographic and sound techniques that Bell and Desmond designed. "In documentary films, it's very hard to come in right at the beginning of something, because you never know when something will happen. Invariably you will miss some great material," said Bell. So whenever something special occurred, the kids were interviewed and recorded making comments about events still fresh in their minds. This method was extremely time-consuming and frequently difficult.

The filmmakers would take their subjects to a mattress-lined room at the Dismas Center, a center for street kids and other runaways seeking shelter. There, the teenagers would do voice-overs by responding to specific

questions about recent happenings and their thoughts about their lives in general. Thus any holes in the narrative structure could be filled.

Whenever possible, Bell, Mark, and McCall tried to take the film beyond the Pike Street setting and to capture the kids in situtations with adult figures close to them. Tiny's visit with her mother was the first instance. The second came with a young man named Dewayne, whose father was in jail and whose mother had abandoned him for a sailor. One day, McCall learned that Dewayne would be visiting his father in the prison. She obtained the necessary relases, and Bell took his camera to the visiting area to record the conversation. The meeting between father and son slowly becomes a failed attempt by the older man to act as a stern patriarch to a boy desperate for affection rather than ironic sermons on morality and honesty.

The room afforded Bell few options for positioning the camera for a two-shot of the boy and his father separated by glass. For the first set-up, Bell squeezed himself into a corner of the room. The situation became more complicated when Desmond found it difficult to hear the father's voice through the glass. Bell was forced to guess where the conversation was at a certain point to permit a change in set-up and/or a cut in the film. This sequence had three set-ups in all – the long two-shot, one over Dewayne's shoulder, and one close-up of the father through the glass. Ten rolls of film were exposed for a sequence lasting less than ten minutes.

Dewayne also figured strongly in one of the film's final sequences, the result of a wrenching and totally unexpected occurrence. Nearly a year after they had left Seattle – filming was completed on Halloween, 1983 – as the editing process was nearly completed, it was learned that the boy had committed suicide in a detention center cell. Shocked at this development, they went back to Seattle in August of 1984 to film Dewayne's funeral, paid for by the state.

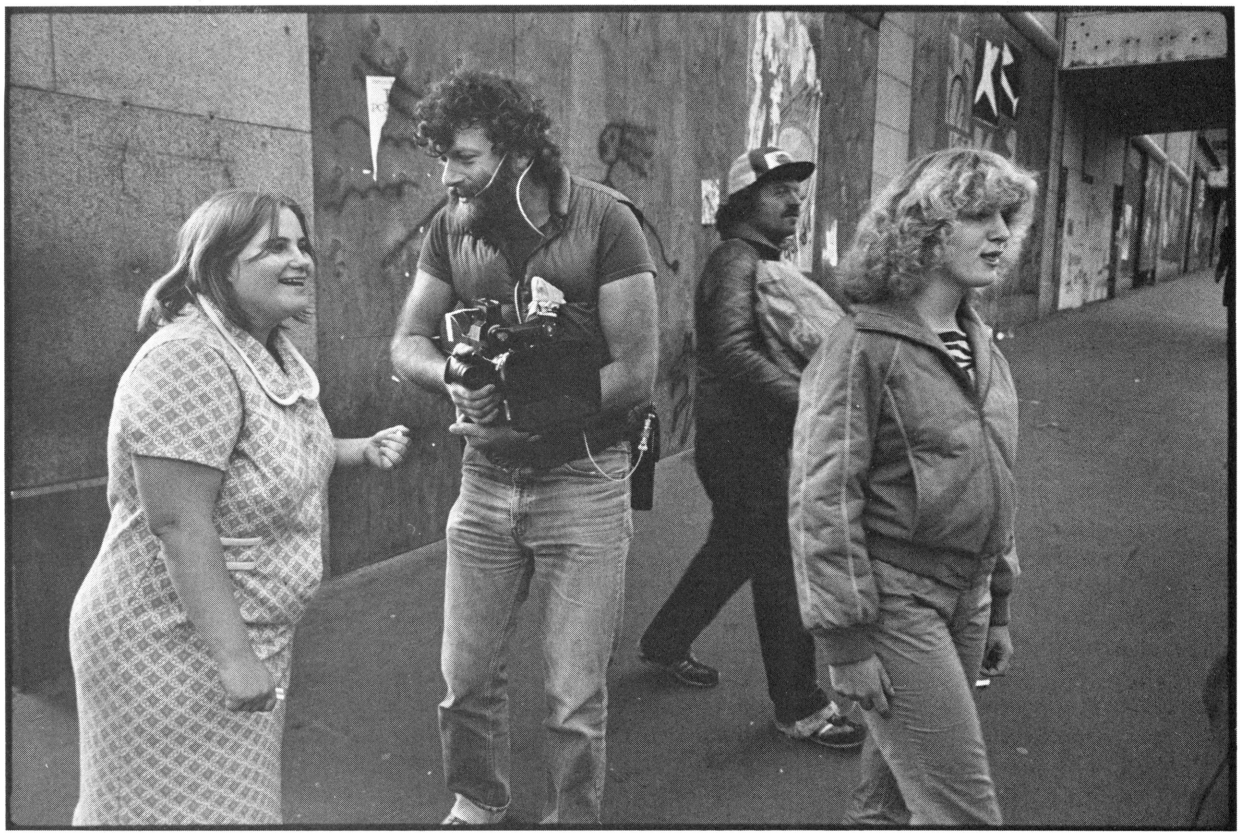
This took place in a small chapel in a funeral parlor 50 miles outside of the city. The mourners numbered only four – Dewayne's father accompanied by two prison guards, and three social workers who knew the boy. The kids were unable to attend because of the distance. Bell was only allowed to shoot the bulk of the scene from the back of the room so as not to disturb the service. Once the three social workers left, Bell could change the set-up to shoot over the father's shoulder as the man wept near the casket, and then to a close-up of Dewayne in the casket lying peacefully. His fellow street dwellers held a memorial service later on and planted a memorial tree in his name.

One unusual aspect of the *Streetwise* production was that Bell never saw any of the dailies during the course of shooting. He kept track of what was filmed by listening to the soundtrack everynight with Desmond, who kept a log of what he considered "good material". All of the film was shipped directly to TVC Lab in New York City for processing and storage. Having worked closely with TVC before, Bell was able to trust Dan Sandberg and timer Tony Sanchez to tell him which scenes came out correctly. Bell said, "Every time they assured me that a sequence was O.K., I found they were right later on. I don't think I could have done *Streetwise* without them."

In the 2½-month period he was in Seattle, Bell shot a total of 56 hours of film. The arduous editing task went to Nancy Baker, who did the Oscar-winning documentary "Harlan County, U.S.A." Within three weeks, Baker and her associate Jonathan Oppenheim had whittled the film down to 10 hours. In addition to working closely with Baker, Bell had the film transferred onto video to enable him to work independently as well as in the editing room. Keith Desmond believed that, from his log, Bell has about 84 minutes of film for a final cut. The final running time, including end credits, is 92 minutes. The entire editing process took seven months – from March to October, 1984. Thanks largely to Baker's ingenuity, the voice-overs blended well into the narrative structure.

Traditional rules were broken in the process of 16mm to 35mm blow-up. As Bell wished to have both 16mm and 35mm prints of *Streetwise* made simultaneously, the editors cut negative A and B rolls in favor of overlap cutting in an optical printer. This is generally discouraged by labs prior to blow-up as it can result in jumps on the 35mm print. However, the negative cutters, Marie and Ron Vitello, matched the rolls so well that no such disaster oc-

Shadow and Shellie—the playboy and the runaway.



Martin Bell and camera on the Seattle street scene.

curred. The blow-up was done at Exceptional Opticals in New York.

A film like *Streetwise* will inevitably be greeted with some controversy about its making. As with other documentaries before it, critics have wondered how the subjects' awareness of the cameras affects the film. Bell sees such worries as basically naive. "There's an idea that, in *Nanook of the North*, Robert Flaherty magically appeared on the white landscape unnoticed by the Eskimos. Now these Eskimos could spot a polar bear's nose six miles away and know it. Anything that came onto that landscape would be seen, and therefore, everyone in the film knew he was there. This applies, I think, to every documentary film, except those where the events are so extraordinary – such as the filmmaker being in the midst of a war – that they override any camera presence or make it irrevelant. But this is the exception in feature documentaries. Extraordinary events usually show up only on the news."

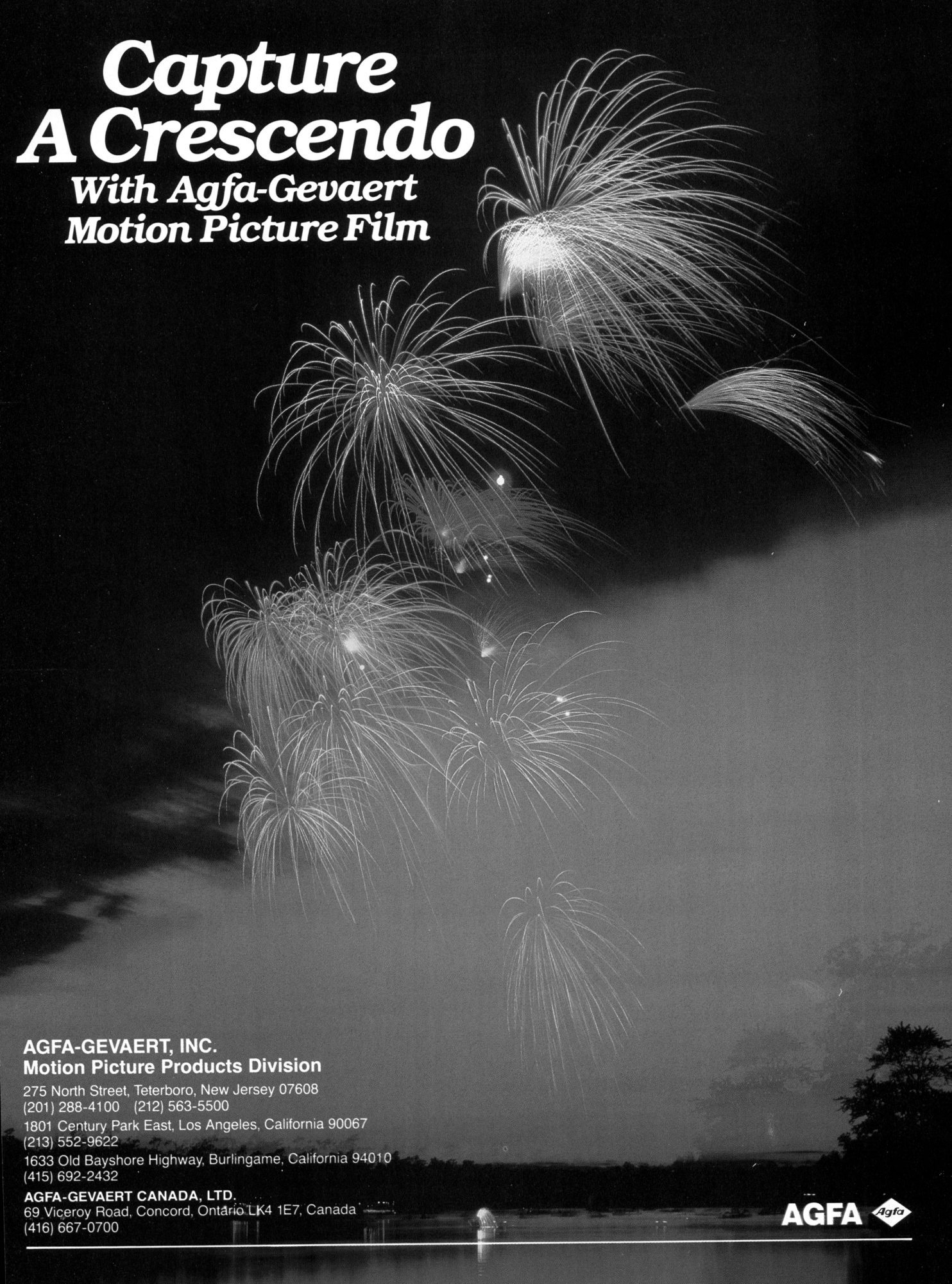
Bell is well aware of the myth of the "pure" documentary – that aesthetic ideal which many filmmakers attempt – and of the fallacy of that myth. He is also critical of directors and cinematographers who prefer a roughly-made documentary film and deem such works as more "real" than a well-made documentary. "There is a feeling," he says, "that a film is only truthful if it's out-of-focus, wobbly, and inaudible, and not necessarily in that order. But I do not hold that view. It is my opinion that the only way to get an audience to see this film, or any film, is to provide an interesting narrative shot as clearly and as audibly as possible. Badly-made documentaries just ghetto-ize the genre; there's no excuse for them with the sophisticated equipment we now have.

"What gives a non-fiction film the grain of truth is the content. The expertise of the cameraman doesn't alter the content one bit, so the 'reality' of a roughly-produced film is just an illusion – one that we've been forcefed through the years, much of the time by filmmakers who may just be trying to find an excuse for their own incompetence."

Since the world premiere of *Streetwise* at the Cork Film Festival and the start of its current release in the U.S., two of the kids – Tiny and Kim, a middle-class girl in a bunny sweater – have left the streets to change their lives. Bell, Mark and McCall have stayed in touch with all of them; indeed, Bell states that hardly a week goes by when they don't hear from some of them through collect calls.

After the unique experience of doing *Streetwise*, Bell is now developing plans to do a fiction film as director and cinematographer. "I've done double-duty for a non-fiction film once, so I'd like to try doing both for a dramatic feature. At least in that situation there's a more rigid structure and you can do a scene again if it's wrong. It sounds like a wonderful change of pace." △

Henry Baker is a free lance writer living in New York. His byline appears in Cineaste *and* International Film Guide.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OCEANQUEST

Terror and Treasure in the Deep

Ocean Images Production
Directed/photographed by Al Giddings
Five-part series for television

by Walt Clayton

The detonation of the armed merchant raider and troop transport, *Aikoku Maru,* was so spectacular that the shock wave reached skyward several hundred feet to disintegrate one of the attacking torpedo bombers in mid-air. The concussion from exploding mines and ammunition in the forward holds literally vaporized the bow, instantly killing hundreds of Japanese soldiers deep inside the aft compartments. This was the morning of February 17, 1944, in the atoll of Truk Lagoon, Micronesia.

Forty years later, Al Giddings steadies his custom underwater 16mm GSMO on a Japanese diver surfacing to hand up a sobering find: a human skull, water pouring from the eye sockets. Gently, it is placed with a growing mound on the stern of the recovery boat – the mortal remains of those who perished in Operation Hailstorm. The divers have been at this for 24 hours, too little time to recover everything from the Japanese warship.

On shore, a huge funeral pyre is built, with thousands of bones and hundreds of skulls. Flags bearing the rising sun are draped over them, and tropical flowers are scattered on top. Nearby, Shinto priests intone endless prayers at a make-shift altar while relatives of the war dead mourn openly in the sweltering heat. Finally, a torch is lit and the pyre erupts into flame – one of the most moving scenes our film team covered for *OceanQuest.*

OceanQuest: The Ultimate Human Adventure is an innovative NBC underwater adventure-action series that premiered on August 18. The series represents a major breakthrough in network programming, offering underwater subjects in a riveting new format unlike any seen on prime-time – or any other time.

Underwater director/cinematographer Al Giddings, who's Berkeley-based production company, Ocean Images, produced *OceanQuest,* explains its origin.

"For years, I've experienced all kinds of unbelievable things with animals in the field – whales, sharks, and all that. My heartbeat and emotions really run rampant and I experience a wonderful rush of adrenalin. Unfortunately, I'm often forced to share this with viewers through images of the animals alone, without a human being reacting in-frame to these fantastic moments. Well, the BBC approached me about producing an underwater natural history series, and I thought this would be a chance to do it differently. I mentioned the project to Peter Guber."

Giddings and *OceanQuest's* executive producer Peter Guber go back to the days of *The Deep,* their first project together. Guber produced it for Columbia Pictures and Al co-directed and shot the underwater action sequences, applying his state-of-the-art 35mm camera systems, housings, and optics. Peter's newfound love of the undersea realm led to a strong association with Giddings. They went on to produce *Mysteries of the Sea,* a two-hour ABC Special for which Giddings garnered an Emmy for cinematography.

"Peter and I tapped our pencils over ways we might do a series differently, and in his typical fashion, he said, 'Why don't we do this, why don't we do that?' So it expanded to encompass a network and a deal involving Ocean Images, The Guber-Peters Company, and Centerpoint Communications. But we were desperate to find some tool, some vehicle, for a totally unique approach. The idea came up to put another human being – not an experienced person, not a professional – in these open water situations engaging animals on the front line: sea snakes, morays, the great whites."

A presentation was made to NBC's president, Brandon Tartikoff, and the concept of a five-hour story, a journey, crystalized. Guber suggested that the protagonist be a woman, to better reach the females in the audience.

"We wanted an unjaded, yet-to-be-awed neophtye," Al points our. "The drama would be her pulse, her perspiration, her accomplishments and her failures. We wanted a year of her life." The search was on, and soon an outstanding candidate emerged: Shawn Weatherly, actress and former Miss USA/Miss Universe. Athletic, courageous, and an excellent swimmer, Shawn had never dived. Exactly what we wanted.

Opposite page: ***Rich Mula pilots OceanQuest hot-air balloon over Johnstone Strait, Vancouver Island, BC, tracking killer whales.***

Photos by Chuck Nicklin, Walt Clayon, Rosemary Chastney, and Terry Thompson

Giddings, and cameraman Chuck Nicklin film Weatherly and TOTO, the remotely operated vehicle, searching for sunken treasure in Samana Bay off the Dominican Republic.

Through her eyes and experiences, audiences would vicariously share the thrills, marvels, and fears of the underwater world.

"The good news was we got the series," Al reflects, "the bad news was we had to produce it." And so began Ocean Images' most ambitious, most demanding undertaking ever, one that would draw upon all the skills and experiences Giddings had accumulated in over two decades of filming beneath the sea, from features like *The Deep* and *For Your Eyes Only*, network specials, and countless documentaries covering sunken ships, the great whales, sharks, and exotic lifeforms at 8,200 feet. It would be a max-out year.

"It stretched us on every front, took us to the outer limits of our experience and physical abilities. The fact that no one was seriously hurt was an Olympic achievement, considering the new elements we engaged and what we accomplished."

The logistics were mind-boggling, a year-long nightmare. Logging over 100,000 miles by jet, turbo-prop, car, truck, ferries, and charter boats, the Ocean Images crew sweltered and froze at some twenty locations worldwide, filming non-stop, back-to-back: Newfoundland, Cuba, Micronesia, Alaska, Baja, Seattle, Florida, the Dominican Republic, South Australia, the Coral Sea, Antarctica, among others. At times, we'd hit three, four countries in a row, with barely enough time to do the laundry or dry out our wetsuits, and never enough time for gear maintenance. The massive amount of diving and film gear ran to 130 cases, weighing in at 6,700 pounds when we were at full complement. Convincing the carriers to move it free, or move it at all, called for cool tempers, smooth talk, and plenty of free T-shirts. We never lost a piece.

But the biggest challenges came from the "new elements" we engaged: anti-shark chain-mail suits, a hot-air balloon, and a remotely operated vehicle (ROV) nicknamed TOTO.

Imagine a cross between a black & yellow bumble-bee and a Space Shuttle shrunk to two feet and you've got TOTO, a deep roving, self-propelled, surface-controlled video unit. Designed by Chris Nicholson of Deep Sea Systems International in Falmouth, Massachusetts, our R-2 DEEP-2 represented a novel approach to ROVs in general, and to underwater filming in particular. Because of its low weight and compactness, we could take it anywhere, on small planes or crowded boats. Powered by 120 or 240 AC current, it runs off ship's power or small generators. Operator Rich Mula, in-house wizard at Ocean Images, would stay topside with an Atari-like control panel to manipulate TOTO underwater and activate the camera. An umbilical cable transmits commands and an on-deck monitor displays everything the lens captures, recording rare color POV shots to intercut with the other footage.

The video camera we used was a Panasonic WV3240 with a Newvicon tube, using a 3mm wide angle lens custom-built for *OceanQuest*. It tilts up 45° or down 55°, and can be directed left or right using the port and starboard thrusters. Rich wound up executing creative pan and tilt combos combining all of the above with vertical thruster moves. Two 150-watt quartz halogen lamps mounted on either side provided plenty of light for close-ups. A depth gauge and a compass are fixed to TOTO's skids and can be checked by a downward tilt of the lens.

Throughout the year and around the world, we were to experience a myriad of exciting new applications, but TOTO also had

its bad days. Downtime was primarily due to the newness of the unit (Serial #002), and the extraordinarily harsh use we subjected it to in the field. Intended mainly for marine inspection duty, TOTO was pressed into service to pursue sharks, penetrate sunken ships, scout out coral formations, and dive under the Antarctic ice cap. Rich soon developed a love-hate relationship with TOTO, but nurtured it to good running order under all conditions, troubleshooting and improvising thousands of miles from the shop.

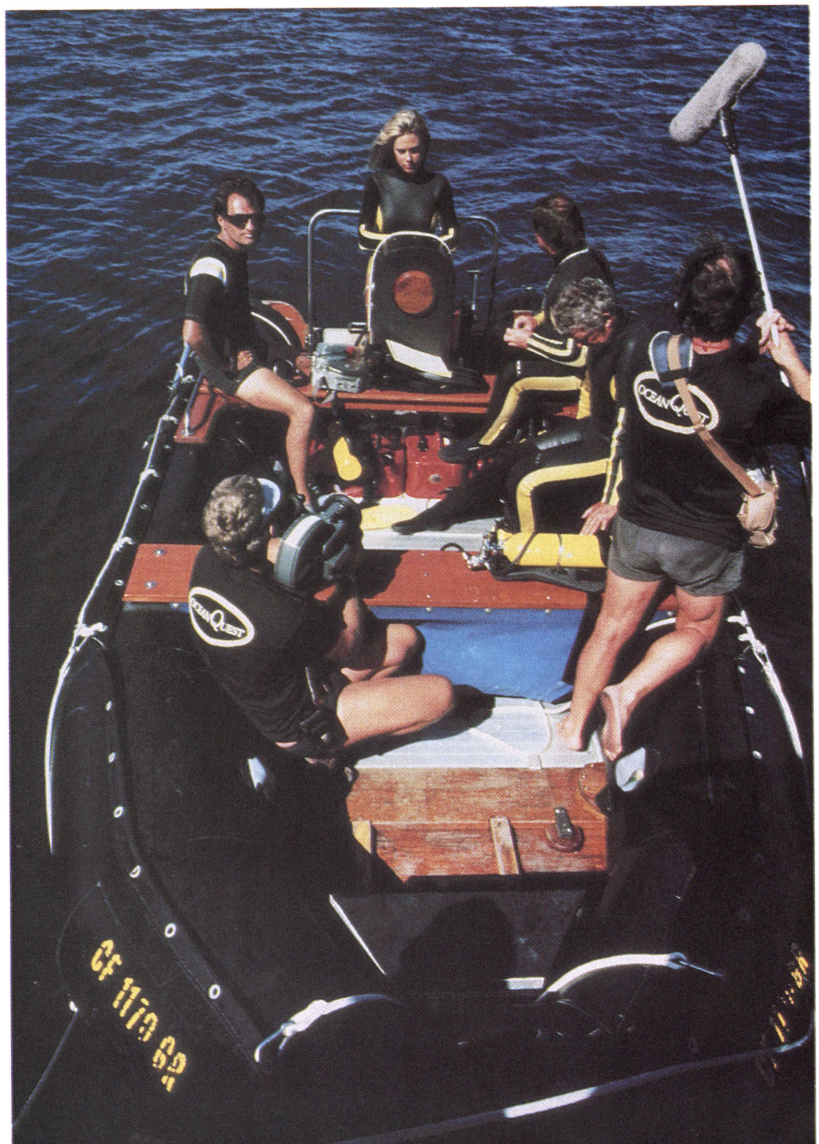
Al had never used an ROV before, but was sold on it.

"It's terrific for exploration and recon," he says. "We could send TOTO down 400 feet and not worry about the bends, water temperature, or diver safety. Sometimes we'd secure it in position on a subject till the action started, which saved a lot of bottom time. We even did some rough research with the great whites, testing reactions and attack dynamics. It's a fantastic tool."

Actually, it's more than a tool. TOTO instantly befriended Shawn and the Ocean Images crew, and then went on to establish international relationships abroad. Under Rich's sensitive tutelage, TOTO became a living, on-camera personality.

The bulk of the topside and underwater filming was done using Cinema Products' 16mm GSMO, a modular camera whose low-profile design lends itself remarkably to underwater housings. Five of these workhorses were used interchangeably topside and underwater, with housings engineered and built at Ocean Images. Dome ports were used to retain the inherent angle of the lens underwater, and an estimated 500,000 feet of film was exposed by Al, underwater cameraman Chuck Nicklin, and topside cameraman Chuck Bangert under extreme conditions, with only minor glitches.

"In Antarctica," Al recalls, "I was afraid we'd have real problems with the underwater



Above: ***Remains of Japanese military men who perished in Truk Lagoon in 1944 are cremated in Shinto ceremony.***
Left: ***Filming the search for humpback whales off Silver Shoals, Dominican Republic.***

The real "jaws" of a great white positioned to chomp wet-suit clad skeleton cleanly in half.* Right: *Giddings presses into shark feeding frenzy for close-up shots in the Coral Sea.

temperature being 28.5 degrees and a topside wind-chill factor of fifty, sixty degrees below zero. But those cameras with their electronic systems performed fantastically, with just a slight adjustment of the pressure plate. Other cameras we considered required $2,000 to winterize, $1,000 to de-winterize. The GSMOS: no winterizing, just off the shelf, boom! Sometimes the dampners on the zoom would freeze up, but not the cameras."

Underwater, the lens Al relied on most was the Angenieux 5.9mm. Shooting through a medium 800 times denser than air, this wide angle yielded super-crisp images and deep, rich ocean blues. In essence, it cuts down the water column between subject and lens, reducing reflected backscatter from particles in suspension. The other main lenses were a 10mm, and a 25mm for close-ups. For each, Rich had to modify the internal elements by installing a 7/1000ths shim. In air, this throws the lens out of focus, but underwater through a dome port everything is crackle-sharp. It's an old trade secret Al pioneered years ago.

In typical Giddings fashion, new ones are on the front burner. "We're experimenting with new zoom systems in our underwater housings. These units will utilize servo motors that will allow the use of all focal lengths through the optically correct hemispheres we applied on underwater feature films. We'll have a 10x rex image, proper eye relief for a face mask, full frame plus a safe area. The hemisphere will not distort the image, or rob the lens of its inherent angle for a specific focal length."

No sooner had the field work wrapped when totally new, updated GSMO housings were being built and pressure-tested at the Ocean Images complex. A slightly larger main housing cylinder is used now "to incorporate the improved viewfinder optics Cinema Products has developed. We use theirs up to a point, but the finder's our own design. It gives a bigger, more magnified, brighter picture with no tunneling effect or cut-off. You see full frame, corner-to-corner."

In certain situations, like great white attacks, the action is so fast and violent that it's over in seconds. The human eye simply can't register all that's happening. Enter the Photo-Sonics Actionmaster 500. Per Al, "We put it on the front line this year for the first time to shoot 100, 200 plus frames-per-second, analyzing the bite dynamics of the whites. It slowed 'em down enough so you could see the jaw distention and the eyeballs rolling back defensively during a strike." This superb footage will thrill audiences and provide a research tool for shark behavioralists.

Another major first was the chain-mail suits, thanks to Barry Novins of Whiting & Davis in New York. Two units were custom-designed for Al and Shawn, and it was fortunate they had them in the Coral Sea. While filming a shark feeding frenzy with some forty assorted grey reef sharks, whitetips, and silvertips chomping into a bait clump and zipping between us, Al practically shoved the GSMO into their midst.

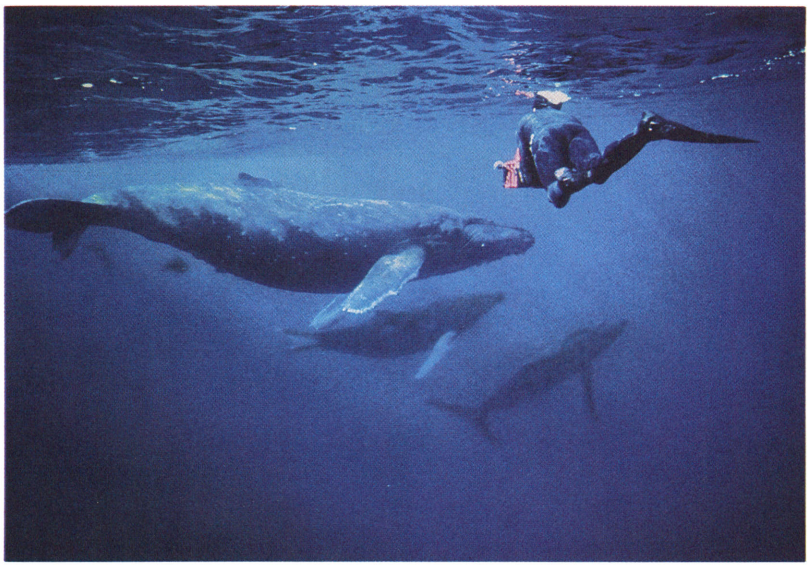
"I could get right in the middle of it in sort of a hand-to-hand situation that I know would have had me in the hospital without the suit. Grey reefs in attack posture will nail you. In fact, a whitetip bit me on the hand and there wasn't a mark, just didn't get through. I see chain-mail suits in future work with dangerous animals."

The most tantalizing, yet frustrating, piece of equipment was our specially-built Raven hot-air balloon. Tantalizing because it offered a steady aerial platform for superb high angle shots of spooky animals like whales, yet frustrating because of its finicky dependency on low winds and good weather. To make things worse, we always worked around water, which made launches from inlets tough, and from small boats impossible. In Truk, we attempted a lift-off from the huge wide deck of a vintage World War II landing craft (LCU), with disastrous results. During inflation, the envelope snagged on a metal cleat and ripped out a nine-foot tear. We sent it stateside for repairs.

Not to be defeated, wizard-pilot Rich took Al and Shawn on a spectacular roundtrip journey over Frederick Sound in Alaska to film humpbacks. Then again, to film killer whales off Vancouver Island, British Columbia. And if it blew off course? Well, we'd just tow it into position with Al's Merc-powered Mark V Zodiac. In fact, fresh propane fuel tanks, cameras, and personnel were transferred to and from the balloon simply by landing it on the Zodiac. Well, not so simply. Fortunately, the basket was aluminum instead of rattan, which allowed it to take a soaking without waterlogging it.

To assist us on location, we chartered an 80-foot motorsailer, *Oz,* to serve as an ocean-going production center and camera platform. As the official vessel for *OceanQuest, Oz* proved invaluable in providing instant global communications and screening facilities to view dailies on site. On board is a complete array of video

Top: ***Giddings leaves the safety of his cage armed only with a broomstick, to position a mannequin for filming great white attack.*** **Below:** ***Underwater unit captures Weatherly feeding giant grouper in the Coral Sea. Fill light provided by 450-watt battery-operated hand lights.***



Giddings and Weatherly assist local fisherman in attempt to free entrapped humpback whale off Newfoundland.
Below: ***Giddings approaches a pod of humpbacks. Scuba tanks are not used, to avoid spooking the animals with air bubbles.***

equipment, including monitors and one-half and three-quarter inch equipment cross-connected to a full audio complement. Ample compartments provided quarters for key personnel and facilities for production conferences. A desalinization plant provides an infinite supply of fresh water for long stints at remote locations. This superb vessel is being chartered for other feature film work.

On the home front, post-production was in full swing at the Berkeley complex as footage was air freighted back. Way before pre-production began, or even before the series was sold, Giddings envisioned a complete production center at Ocean Images. He made a bold gamble and bought three newly-built houses near his, linked them all together, ripped out kitchens, redesigned garages, and built additional rooms. Phones, furniture, and editing machines were installed. The film crew could be gone for weeks, but the editing staff, headed up by the driving creative force of Lou Gorfain, pulled the scenes together.

A 70,000 gallon, 15-foot deep insert pool on the three-acre premises proved invaluable later on for pickup shots the editors needed. They are so designed that, with the proper color and grout, they yield an infinite background for needed close-ups and reaction shots. We'd just jump in, shoot, fire the film off to the lab, and insert it the next day.

OceanQuest breaks down into five one-hour shows. *White Death* is first, with an attempt at capturing a great white off the Farallon Islands, just outside the Golden Gate. Then we move to Whitey's real stomping grounds, Dangerous Reef, South Australia, to document a series of experiments on the attack patterns and bite dynamics of this awesome creature. Conducting these tests was Dr. John McCosker, director of San Francisco's prestigious Steinhart Aquarium, and one of the top experts on great white behavior. Using surfboards, mannequins, and even a human skeleton, theories on the reasons why whites attack man were explored. The Actionmaster 500 was used topside and underwater, in a special housing.

Because great whites seem attracted to magnetic fields created by metal objects, there was considerable speculation on what would happen to TOTO if we put it in the water. They will readily attack swim steps, "flopper-stopper" stabilizers, cage floats, and running outboard propellers. An 18-footer could easily wrap those huge jaws around the ROV's 19-inch girth. Dr. McCosker held that, with the electrical fields caused by the motors and metal parts, the whites would jump TOTO and eat it.

Al differed. "I maintained that the sharks would be confused by this yum-yum yellow thing with whirring motors and 110 volts running through it, that it would put them off. As it turned out, they weren't aggressive toward it and didn't want to eat it. Certainly if they had any idea of their advantage, they could wipe it out in a second." TOTO survived to deliver critical underwater video images.

In a daring first, Giddings ventured outside the cage at 50 feet to film in the midst of five circling whites, armed only with his camera and a broomstick, no chain-mail suit. A mannequin dressed in full wetsuit was positioned on the floor, during which Al had to poke the curious away.

After a few cautious circles, a white promptly shredded it. Al and Chuck Nicklin got it all.

In *Men, Myths and Monsters* we de-bunk some of the myths about the sea's most feared inhabitants. In the Coral Sea, Shawn encounters her first sharks and air-breathing sea snakes, discovering firsthand how to cope with them and conquer her fears. To light the snakes, we used hand-held 450-watters and followed them wherever they went – under coral, into shipwrecks, or head-on! It's important to not confuse their natural curiosity for aggression and panic. Handled gently, sea snakes are very docile, even though their toxicity level is many times deadlier than that of land snakes. Shawn feeds giant grouper and hugs six-foot morays, finds lionfish and loggerhead turtles on the wreck of the *Yongala*. In the San Juan Islands she makes an entangling alliance with a giant octopus, and in Baja she cavorts with carrot-eating sea lions.

A footnote on Shawn. Jumping into cold or murky water can be uncomfortable or spooky, but getting in with sharks for the first time can be outright terrifying. When our charter boat, the *Reef Explorer,* dropped anchor in the Coral Sea, it was immediately surrounded by a half-dozen sharks, fins cutting the water, all that. Divers positioned the bait clump for the feeding frenzy at 70 feet, the cameras were in position, and some forty sharks were waiting to be cued. I waited in the water to escort Shawn down. She sat on the swimstep in her chain-mail suit, armed only with a short stick – and a lot of guts. Eyeing the sharks, she slipped into the sea without hesitation, and expertly made her way to the bottom. When the frenzy got going, she was right there, shark zipping everywhere. Lots of points for that!

Treasures of the Deep takes us from the stunning gold of Mel Fisher's *Atocha* in Florida to the sunken galleons that litter Samana Bay in the Dominican Republic. Here, in an unscripted stroke of fate, Shawn actually discovers an untouched galleon during the filming. In Cuba, we dive Havana harbor to recover antique bottles from the Old World fleets, and a diving friend of Al's, Fidel Castro, pays a rare visit to admire our camera systems and befriended TOTO. Finally, Truk yields a treasure of a more human nature, one measured in souls, not precious metals.

Weatherly and Giddings wear chain-mail suits as protection from sharks.

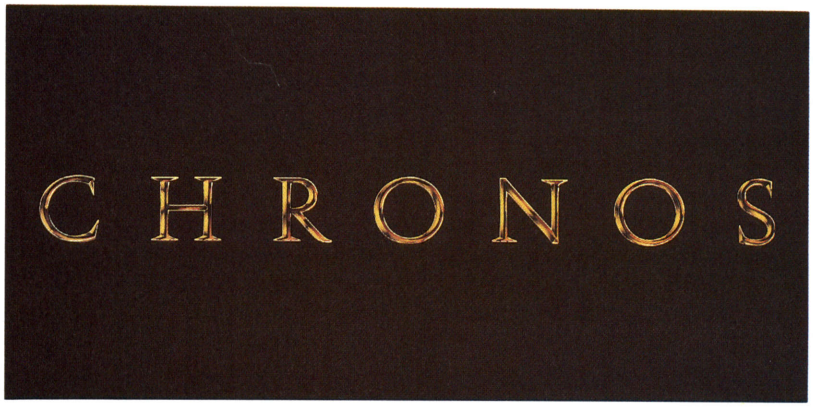
Newfoundland, Alaska, and the Silver Banks of the Dominican Republic dominate *Encounters of the Fourth Kind,* which traces the extraordinary migration pattern and feeding behavior of the humpback whale. Shawn tries to unravel the mystery of their song, and participates in the release of whales trapped in the nets of fishermen in freezing Newfoundland.

The final episode, *Fight for the Bottom of the World,* takes Al and Shawn on a perilous dive under the ice in the world's most hostile environment, the Antarctic.

To pull all this together required the temperament, competence, and cohesiveness that typifies the Ocean Images crew, the tenacity to hang in there for months on end and not go crazy. But even more critical was Shawn's commitment and courage, which proved unflagging on the toughest locations and in potentially dangerous situations. Al shares this feeling:

"In those areas I thought she'd have great problems; she had none. Confronting animals, diving deep into the bowels of warships, the cold water in Newfoundland, the drysuits, Antarctica – all the really super tough stuff where I'd expect trouble from the hardiest of divers, Shawn was bulletproof." △

Walt Clayton was production manager on OceanQuest.



Imax Eyes History

by Ron Gold

(Editor's Note: Wayne McGee, electronics designer and animation wizard for Chronos, *died July 14, 1985 of cancer. He was 37.)*

Chronos is the personal vision of Ron Fricke. No other IMAX film has seen the earth in so unearthly a way. Vatican visitors seem as ants, overwhelmed by a mysterious, phenomenal power. The world's great stages – the Acropolis, St. Peter's Square, Monument Valley – are his sets. In nature, Fricke has found an expert, if unpredictable, lighting artist.

The sun commands the lead in this film. Puffy clouds build shadows that cast buildings as bas-relief. The solar presence and its absence radiate their suggestions, an animation of light and illusion.

The whole of *Chronos* is shot in time lapse below one frame per second. Inevitable comparisons will be made with Ron's work on an earlier feature, *Koyaanisqatsi*. A 35mm frame was just too small to paint the grand murals at Four Corners. Composing within a frame ten times larger intrigued the cinematographer, so he began designing an IMAX-compatible camera for special effects.

Elizabeth Emerson was developing the overall strategy for Ron's new project and invited Mark Magidson to a showing of *Koyaanisqatsi* in Century City. The Los Angeles businessman became the first to invest in *Chronos*. By the time major backing came through the San Diego Hall of Science, the camera was virtually assembled.

The concept for this film was born at a Greek restaurant in California, the brainchild of Genevieve and Constantine Nicholas. Our civilization really began in the Fertile Crescent, they argued, and then moved relentlessly westward. On that premise and almost in that order, Ron tracked the march of history. From Cairo to California, an archetype is shared. We, in the West, all experience a subliminal river. A sense of manmade time is its anchor. *Chronos* follows that River Nile to the Pacific.

The film starts very slowly floating down the Colorado River and through Monument Valley. Nature's architecture turns on the most minute of time scales. The river reverses, and then a window opens upon the crossroads of the world. Woven through this mysterious dance of Sphinx and stone is a slow, measured acceleration. Out another window we fly and burst into the light of the classical world. In the final montage, history flattens like pancakes, as we carve up the New World. The age of time compression has arrived. New York and Los Angeles are hurled at us.

The eye of *Chronos* looks out upon the world as an observer, innocently absorbed. Ron knew very little of Europe's history and aimed his camera at what appealed to him aesthetically. Though thousands of years separate them, the builders of Luxor and Los Angeles draw their inspiration and their technology from the same creative well. This planet has always had some phenomenal force playing architect and wet nurse. We're not spinning out of control.

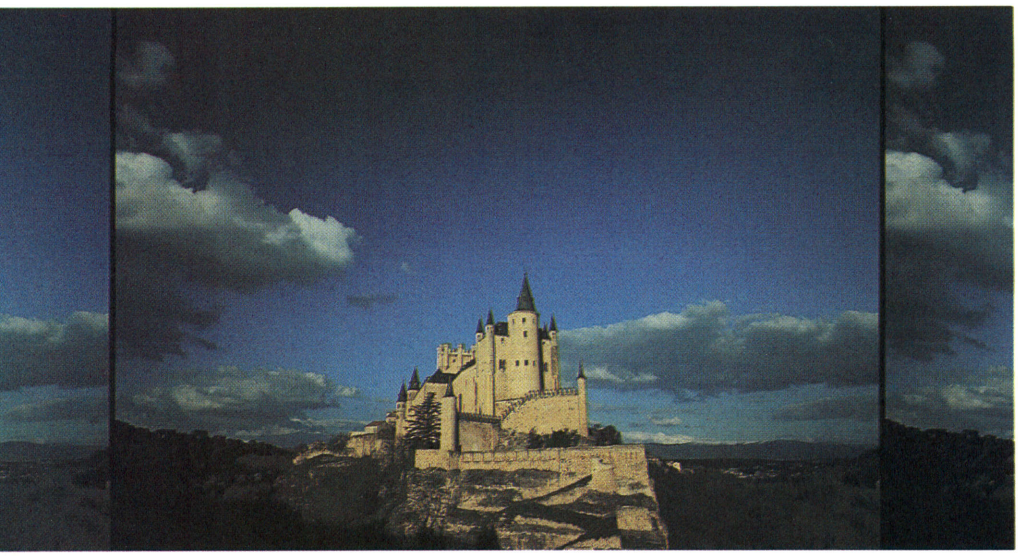
Ron spent $1200 to build the basic movement for his camera. Inspiration came from cutting down trees with a chain saw in Palm Springs. Most camera movements consist of either a large cam with a claw arm riding around it or a Geneva with intermittent action similar to a film projector (stop-go, stop-go). In this prototype, a chain runs on a circular path, allowing the film to advance forward *or* reverse at 15 perforations per frame. The chain is always moving, like a cam would; the claw mechanism, attached to the chain, operates with intermittent action. A 6″ guide applies a slight horizontal pressure on the top edge of the film, while a single pin enters a perforation and holds the frame in registration. This design was feasible because the camera speed didn't exceed three frames per second.

Once the movement worked, the rest of the camera, including the film gate and registration system, was no problem. The lens and viewing system were designed to use the Pentax 6x7 package from fisheye to 1000mm. These lenses were IMAX format with no distortion on the edges. The prototype also included a variable pressure plate, so two pieces of film could be run through the camera simultaneously to do special effects work later.

Finding Dave-Co Precision was a stroke of luck. Dave Garcia didn't just knock out parts. He was an artistic machinist who did detailed work without demanding technically perfect drawings. The remaining plans took four months to draw, and then decorated the filmmaker's walls. There was no money for camera parts.

Mark Magidson came along one year later. A casual filmgoer impressed by the style of *Koyaanisqatsi*, Mark had a growing manufacturing business and

Opposite: ***Monument Valley, Utah, setting of many classic Westerns, captured in all its grandeur by Imax. Enlarged from the movie frame.***
Below: ***The Hall of Mirrors in the Palace at Versailles, France.***



The great castle at Segovia, Spain. **Opposite:** *Ron Fricke, producer-director-cinematographer, and Wayne McGee, special effects supervisor, on location in Monument Valley with the Imax camera.*

had built his own plant equipment. So he was particularly interested in the prototype equipment Ron was designing. His sixth sense propelled him out of his professional safety zone and into a new film technology. Mark put up the initial money to complete the camera and then contributed major funding as one of the film's executive producers.

Parts were now being churned out by Dave-Co Precision at a furious pace. The camera was taking shape on various motel beds in Santa Monica, where Ron was living out of a suitcase. Once the San Diego Hall of Science became interested, the pressure was on. They wanted to see some tests before signing. "Considering all the possible things that could have gone wrong at that stage," Ron said, "we were lucky."

The special effects camera built for *Chronos* has more than paid for itself. Ron was on the road for over five months. Had he not had his own camera, the budget would have required an extra $100,000 for equipment costs, based on the usual $5,000 per week camera rental. Five hundred feet of film moving at 24 frames per second would be used up in about a minute and a half. On this project, shooting at less than one frame per second, a roll would last for days. Ron's camera, designed with a removable vacuum aperture plate and bi-packing capabilities, would also function as a projector in post-production. By illuminating the gate, a 35mm Mitchell was married to the prototype to make a reduction print for the edit. Lab charges run about $1 per foot; Canticle's only bill was for 35mm positive film stock and processing.

Five months of camera assembly and 22 customized cases later, the equipment was ready for its maiden voyage overseas. None of the crew had ever been abroad before. The camera had just been assembled, but hadn't been completely field tested. No one had slept for three days. Elaborate travel arrangements had been confirmed. Europe in the dead of winter was out of the question. It was February and a crew of five was on its way to Egypt. The entire film budget was now at the mercy of international baggage claim.

"A Fellini film run in reverse," is how Ron remembers the cab ride in from the airport that first day. Hooded faces peered from their tents alongside the road. Bonfires, smoke and the smell of burning garbage filled the air. Horses, camels, donkeys cluttered the streets. Horns blared without a stop sign or a traffic lane in sight. Complain about Los Angeles traffic? ... Never again! At the doorstep of the Ramses Hilton, their 40 story hotel and the city's only modern skyscraper, the 20th Century came to its senses once more.

After three days without sleep and 14 hours of cabin fever in the sky, no one had jet lag. They were all exploring new levels of unconsciousness. From his 20th floor balcony, Ron looked out over Cairo the next morning in a daze. Were all those buildings below going up or coming down? "I could have been in a space ship that had landed after an atomic bomb blast."

As tourists, the group might have found Cairo exotic. But working in the Arab capital was nothing short of a terrorist assault. Arcane regulations, vaguely military in origin, were a constant source of frustration. Everyone had to be paid off, because everything Ron wanted to do was forbidden. One sign read "No Big Cameras Allowed." This being the world's largest camera, it could hardly go unnoticed in a Third World country. At every monument – and there were plenty – Arab guards of unknown allegiance had to be dealt with beyond the cry for permit fees.

The Department of Egyptian Antiquities raised those while the crew was somewhere over the Atlantic. The documents sent to Los Angeles had read $50/hour. On location, stop watches appeared from under the robes of Department observers, as soon as the camera started beeping. The clock was ticking at $250 an hour.

For the aerials, a department observer was required to be in the helicopter and dictate the flight path. He would have preferred to just fly around and not get close to anything monumental. They haggled like fish wives to get one pass at a single pyramid. All of the aerials were shot at 24 frames per second with a rented Wilcam. The IMAX-compatible camera was attached under the belly of the helicopter with a specially designed portable mount.

The eerie shrill of the call to prayer came out over the mosque loudspeakers several blocks from the Hilton. The sound would bounce off the cliffs of the Nile and awaken the crew

at 4 a.m. Little sleep, helicopter dictators, long and odd work hours, permit summits, baksheeshmania (payoffs), mosquito pox and the joy of dysentery, which nearly swept away the crew – filmmaking was never so glamorous!

When the technical difficulties began, that was the icing on the cake. Something white and cold crawled up Mr. Fricke's spine at the Temple of Ramses in Abu Simbel. The camera jammed and, in a sudden flash of fear, he saw the potential for disaster. So much money was riding on this highly praised, but still unproven, prototype. There they were, eating sand on the fly-infested Sahara, their film cases glittering in the sun like costume jewelry. Electronic life support was 8000 miles away.

Wayne McGee stayed in Los Angeles to finish the motion control for the camera. Ron had found this animation wizard years ago in San Francisco, where McGee was working as production manager at Motion Picture Services. Wayne designed and built all of the electronics for the prototype equipment in three months. The plan was to have a camera and motion control system with all the whistles and bells of an optical printer, plus some additional features. The animation studio was going outdoors.

In his *Koyaanisqatsi* days, Ron had adapted an old white Mitchell, used to photograph atomic bomb tests in the desert. The time lapse controls were made from the motor of an electric car window and Radio Shack parts. The equipment used in *Chronos* was a far cry from "Garage Production Presents. . . ."

In this process camera, two stepper motors permitted independent control of the shutter and film advance. That way, the exposure wouldn't brighten as the action slows down. One could be programmed against the other. The film wouldn't need to be pushed in processing with this kind of control.

The Atlantic Ocean rolls in eight miles and surrounds the isle of Mount Saint Michel in Normandy. The tides turn a mudscape into a lava flow of water twice a day. First, the frame delay was decreased to await the sea. One hour into the shot, the sun was setting and the shutter delay was increased to offset the natural decrease in light. Because of the independent controls, the change can't be detected on film.

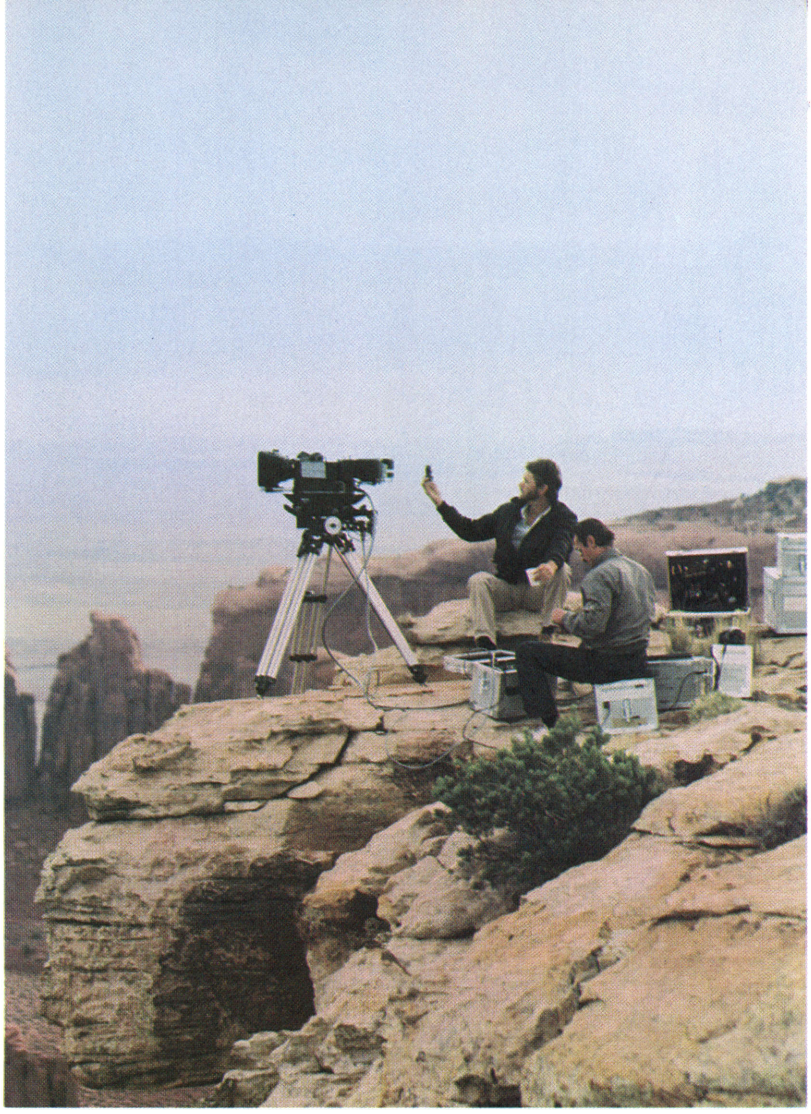


Photo by Alton Walpole

The phase printing of yesteryear could now be done in the camera with multiple shutters. Up to 99 shutters per frame were possible. New York's Grand Central Station went stroboscopic, by firing the shutter four times in one frame. Commuters looked like playing cards, churning off the rolling steps. The dolly to the escalator was smooth as silk, unaffected by the strobe, thanks to the independent stepper control. Manhattan's 9 to 5'ers were vaporized right off 42 Street into the spirit realm, by using a long shutter delay (streak) coupled with the multiple shutter. Cars were at the mercy of "Fricke-flex" outdoor animation studio as well, and went slinky into the night.

The motion control system has a separate control box from the camera. Its four channels can all perform the same functions, but operate independently. Each listens to one of six different pulses, generated either from inside the camera or external memory. You can set the channels to streak, strobe, operate manually and under external control – all in one move. On location, Wayne designated these channels for pan, tilt, zoom and dolly.

All but the zoom were used to film the White House cliff

dwellings in Cañon de Chelly, Arizona. A 60-foot plywood track was laid for the 3-wheel dolly, which fit under the tripod and was just big enough to carry the camera. With its own stepper motor, the dolly inched the camera forward at 1/16″ to ½″ per frame. The two hour shot took two days of work in the heat of August, but it paid off. The entire mesa wall was revealed, from shadow into full sunlight, with the fisheye.

Tourists have a knack for entering the frame unannounced, and jet trails play havoc with the mysteries of a Spanish castle. Software in a totally computerized system does not allow for changes once a program has been activated. A second program could be set up to deal with changes midway through a move, but then glitches were likely at the point where the programs met. "The solution was obvious," to Wayne. "Make the ease-in and ease-out curve shaping circuits *analog* to digital converters generated by standard RC tank circuits, independent and parallel to each other." (What did he say, Wilbur?) The curves were analog and the supporting circuitry was digital. In other words, you can push some buttons and change things while a move is in progress; and no one would be the wiser – no bumps. The electronics are modular: computer-compatible without being fully computerized. Disk drives freezing in the studio was trauma enough. Crashing in the desert was better left to camels.

Wayne's motion control was uniquely designed to run on 12-volt lead acid batteries. The camera also worked off batteries, so they could fly up some mesa in Four Corners and hang off the edge of reality. Portable minicomputers are prone to noise glitches and are too temperamental outdoors. They wouldn't survive these backwater cliff hangings, never mind the rigors of airport conveyor belts. Made to fit into cases 9″ high by 10″ deep, the "Wayne brains" travel steerage.

Stepper motors are very dependable and accurate within micrometers. That's always desirable, but especially so since Ron couldn't go back to re-shoot. In the standard motion control, the stepper speeds are fixed, and a move must be completed before the camera advances. The motion control system has variable stepper speeds, while the camera speed remains constant. Complex special effects like curved streaks are comparatively easy to perform. Six steppers, two for the camera and four in the motion control, might consume as much as 30 amps in a shot. So the driver cards were altered to shut down the current during the "off" states. The average shot used three to six amps, depending on how many motion control channels were operating. One battery was enough for six hours of filming.

With over 6000 wiring connections, the prototype was bound to have some crossed wires. That's why Wayne was still in Los Angeles, deliriously de-bugging, when the call came from Cairo.

The inevitable had happened. Ron was planning some simple camera moves before the master arrived with the completed motion control. He would use the primitive device he'd built for *Koyaanisqatsi*. Into the control box went an auxiliary plug and out came a puff of smoke. The camera was dead. Wayne arrived three days later and fixed the short in five minutes.

Much of the magic and some of the misery in making *Chronos* came from having to rely on the whims of nature.

High above the Aswan Dam, the interior of the Ramses Temple sits in virtual darkness. The sun lines up across the Nile and shoots into the last chamber a

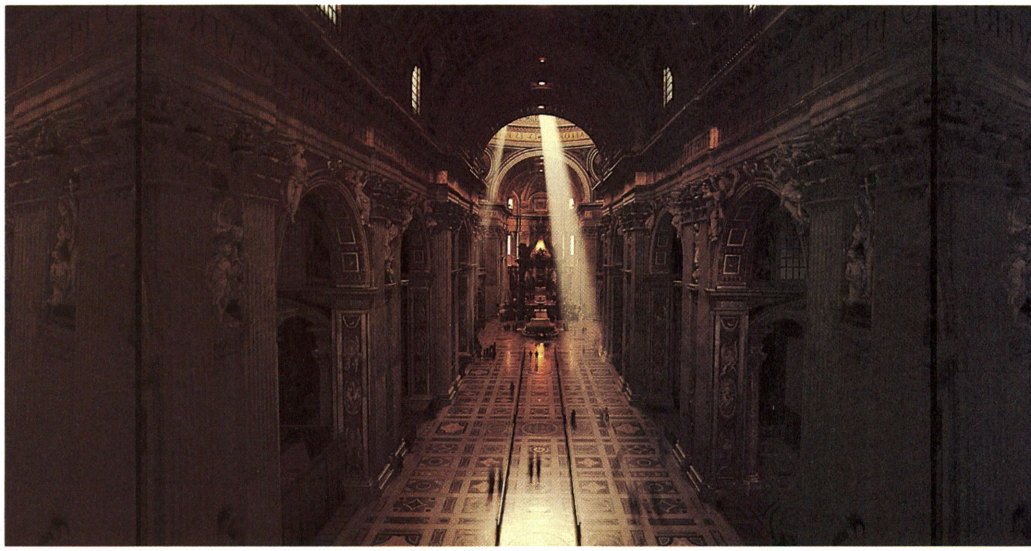
few days each year. After the crew set up one crystal clear morning, the sun struck the back wall and was caught on film. "We were ecstatic. You can't scout that a day before," Ron insists. "When you do, life has a sense of humor and sends down the clouds on the big day." This shot was the exception for time lapse work. Usually you pray for clouds. Without them, there are no shadows or movement. Cinematography of this sort hinges on weather condition to set the mood. With so clear a sky, Egypt was a real problem. Most of the time, though, nature delivered on cue.

To set up on the Pope's balcony in the Vatican, permits were arranged well in advance. The day of the filming was blessed with a cloudless sky, and three laser beams of sunlight streamed through Michelangelo's dome. Each frame was exposed for five seconds. The nave was shot wide open, as were all interiors, which meant an f-stop of f.4 with Pentax 6x7 lenses. The camera tilted down to reveal a frenzied infestation of tourists in wide angle.

This kind of cinematography was suited to wide angle or telephoto, and not much in between. Medium shots were rare. The 65mm film stock was 5247, except at night, when they took advantage of the 5294's higher speed. The shooting ratio was 1:1. In filming *Chronos*, there was no going back.

Atop the Abbey of Mount Saint Michel in Normandy, the overcast was layered in several different directions. In time lapse, the moving clouds suggested a dream state. The ebb and flow of the tides, on an otherwise barren landscape, was the perfect mirror image in mud and water. The forward dolly move, shot with the sharp fisheye, brought out the multiple illusion.

The camera linkage broke in Israel. The fuse blew on the Thames with Big Ben watching. Another runaway turned up on 42nd Street, when New York's finest dirt got into the reset switch and sent the shutter whirling.

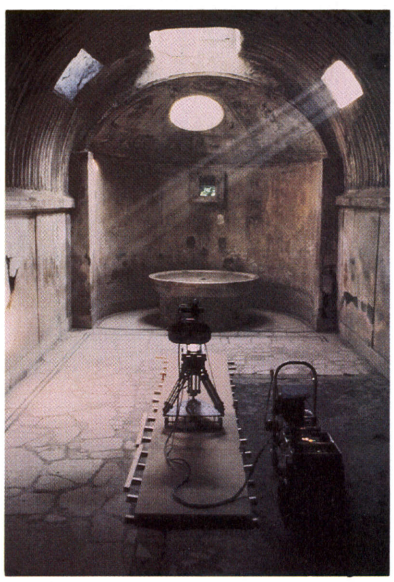


Wrapped in blankets at land's edge, a water-logged crew waited for the sea to roll in at Saint Michel. The pan had to start before the tide was visible, or the move would be too fast. Using times the French had given, Ron was always too late. The motion control had enough of the damp, cold weather and just decided to take off on its own. Its independence was rewarded the next day with a fifth try.

As the weather changed, so did Ron's intentions. His guides who arranged the permits were frustrated no end. Getting even one location locked down was tough enough. Appointments would have to be made with officials who specified an exact time and place in writing. Then things would change. French and Italian bureaucrats grew increasingly irate, as the permit revisions crescendoed. "Who are these people," one official demanded, "a band of gypsy minstrels?"

Climbing to the top of the Great Pyramid at Gizeh was forbidden, Forbidden in Egypt doesn't mean you can't; it just means you pay. Ron wanted a shot from the top, so Alton Walpole, the production manager, was put through his paces. At 3 a.m. the guide was met, and on-duty guards were baksheeshed to carry up 500 pounds of film equipment.

The spotlights came on in the dark hours later, as the Muslim call to prayer stung the violators midway. The Arab uniforms deserted in no time flat, for fear they'd be accused of stealing antiquities in the film containers. The word must have spread around Gizeh about the big camera ascent. While Alton was playing peacemaker with a sergeant down below, the equipment sat half way up the burial tomb under the watchful eye of Cheops. The five hour mission impossible ended with a proclamation, "Americans, welcome!" The cameras met their maker near the base of the pyramid at sunrise. Ron's arrival was a footnote. Not a shot was fired. They flew to Europe the next day.



Opposite: ***Mark Magidson, producer; Tove Johnson, production assistant; Tom Fricke and Mark McGee at Mont St. Michel in France.*** **Above:** ***Interior shot of St. Peter's Basilica in the Vatican City.*** **Left:** ***A bath house in the ruins of Pompeii, Italy.***

Above: ***The Great Sphinx and the Pyramid of Cheops at Giza, near Cairo (frame enlargement).***
Below: ***Louis Habib, Egyptian location coordinator, and Egyptian antiquities officials with Fricke at Giza.***

This film is seen in both IMAX and OMNIMAX, which created a problem in composition. The fisheye lens was compatible with OMNIMAX, where all curved vertical lines would straighten into parallels on the dome. The other 12 lenses were fine for the flat screen, but in the dome, vertical lines on the periphery would look bent. The solution in both cases was to place columns, horizon lines, and all verticals near the center of the frame to avoid distortion. With the fisheye, Ron composed for the flat screen; with flat lenses, for the dome. Sublime as the Parthenon may be, it was no treasure to shoot.

There was no money to do advance scouting in cities. Places with the greatest concentrations of culture like Athens and Rome were obvious choices. If the crowds could be controlled, there would be plenty to shoot. Single sites in isolated locations were picked out of picture books. A Spanish artist had torn out a cathedral vault in the Transparente, replacing it with sculpture, to increase the light. The camera went there and painted El Greco's Toledo.

The film found its truest expression aboard the bateaux mouches on the Seine in France. These boats already had what looked like movie lights. The camera, fisheye lens and Wayne McGee were in the rear of the craft. As he slowly increased the length of exposure from one to thirteen seconds per frame, the streak effect accelerated. The tourists up front seem to freeze and fly through an antique time capsule – all of Paris, a souvenir.

In the eleventh hour of post-production, there was no other choice. The labs couldn't do IMAX to IMAX printing, and Ron needed some opticals. So a 65mm, 15 perforation Wilcam was converted and aimed into the gate of the prototype camera. A horizontal optical system was built to do simple effects, such as skip framing, fades and sequential dissolves. Los Angeles at night was turned into a smear and blur ballet. Each frame was exposed for 1½ seconds, and then the footage was slowed down selectively with step printing. Canticle Films did all of the opticals with their own IMAX to IMAX setup in one week.

Anything goes for Michael Stearns, composer. One minute he's riding on a synthesizer chord and the next, the natural ambiance of a Mexican jungle village comes in. His eerie, arhythymic sounds are created with long sustained chords and microtonal scales, replacing the 12 tones familiar to the Western ear. The music has a sense of the dream.

His studio is a melange of synthesizers, digital delays and reverbs, computer keyboards, mixing consoles, sonic hologram generator, 24 track tape recorder, eikosany, beam, Finnish harp, and waterphone – it's a jungle of wire and odd instruments. Miraculously, everything gets distributed through the Ramsa 8616 mixing console to six surrounding speakers. In the theater, each note

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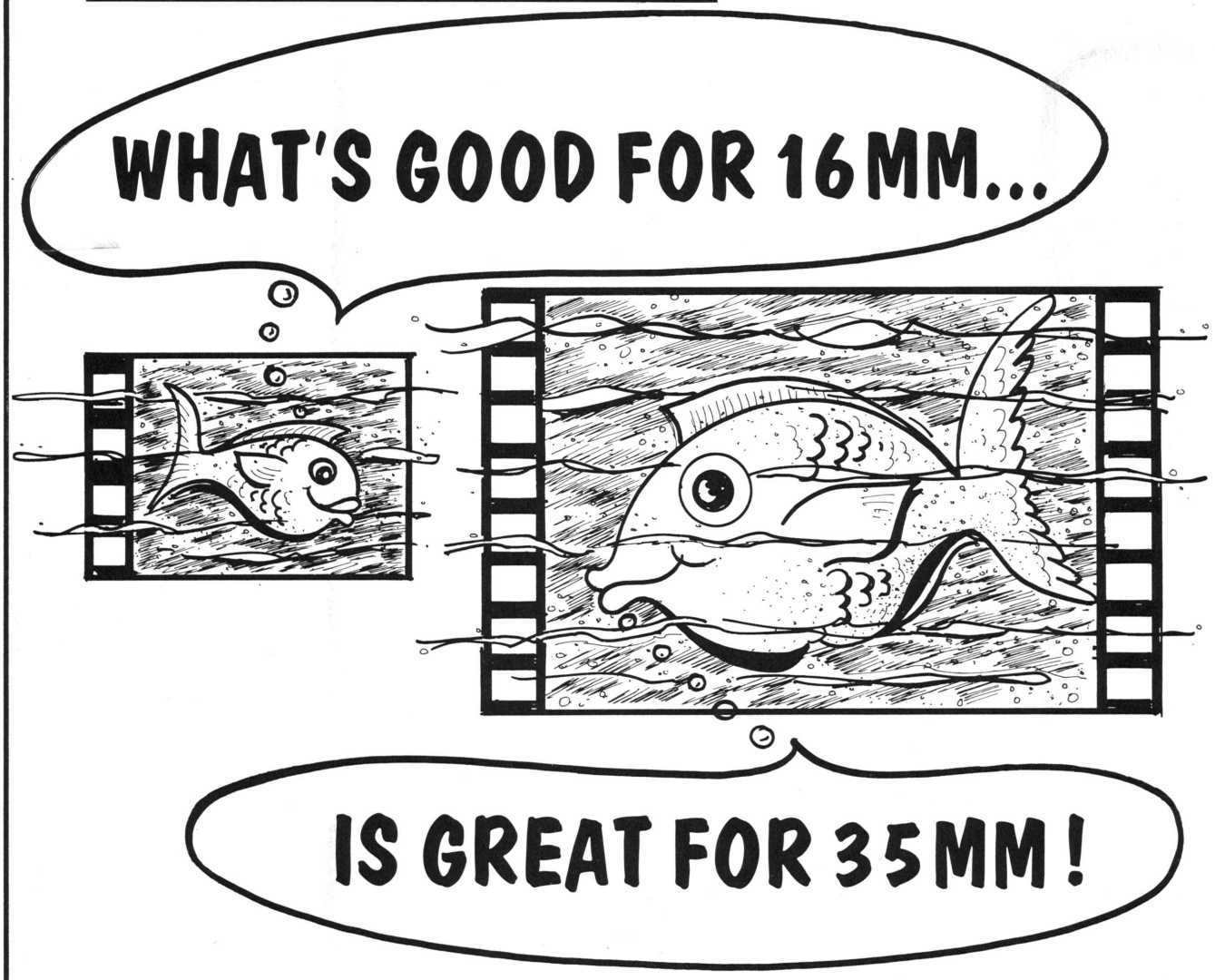

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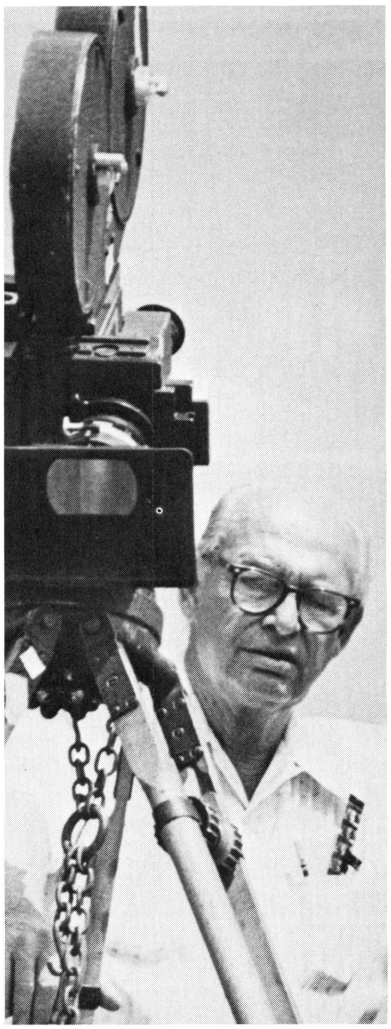

This man:

- ▶Landed a flying saucer in the heart of Washington, D.C.
- ▶Made Paul Newman and Robert Redford leap 80 feet into a rocky creek
- ▶Destroyed the world's tallest building.
- ▶Sent Raquel Welch on an odyssey through a man's bloodstream.
- ▶Fed James Mason to a giant lizard
- ▶Sliced his boss's son to ribbons with laser beams.
- ▶Turned a luxury liner upside down
- ▶Put Rex Harrison aboard a giant moth on its way to the moon

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of a chord can be sent through a different speaker. The music creates a spatial architecture that swallows the IMAX audience and drowns Dolby matrix in the dust.

What Ron Fricke was looking for musically was not a sound track, but a composition in its own right. There was talk of Vangelis or Tangerine Dream. Michael's music had just the ethereal feeling to work with the image. Three months later, the footage was being cut to a symphony in four movements by Michael Stearns.

The chemistry between these two, cinematographer and composer, is based on a shared confidence. They see themselves as instruments of a creative energy with a mind of its own. The idea is not to control, but to relax and let it flow through. The length of the movements was not predetermined by image. Ron edited into the music and the sections almost seemed to put themselves together. The rough cut took a mere two weeks.

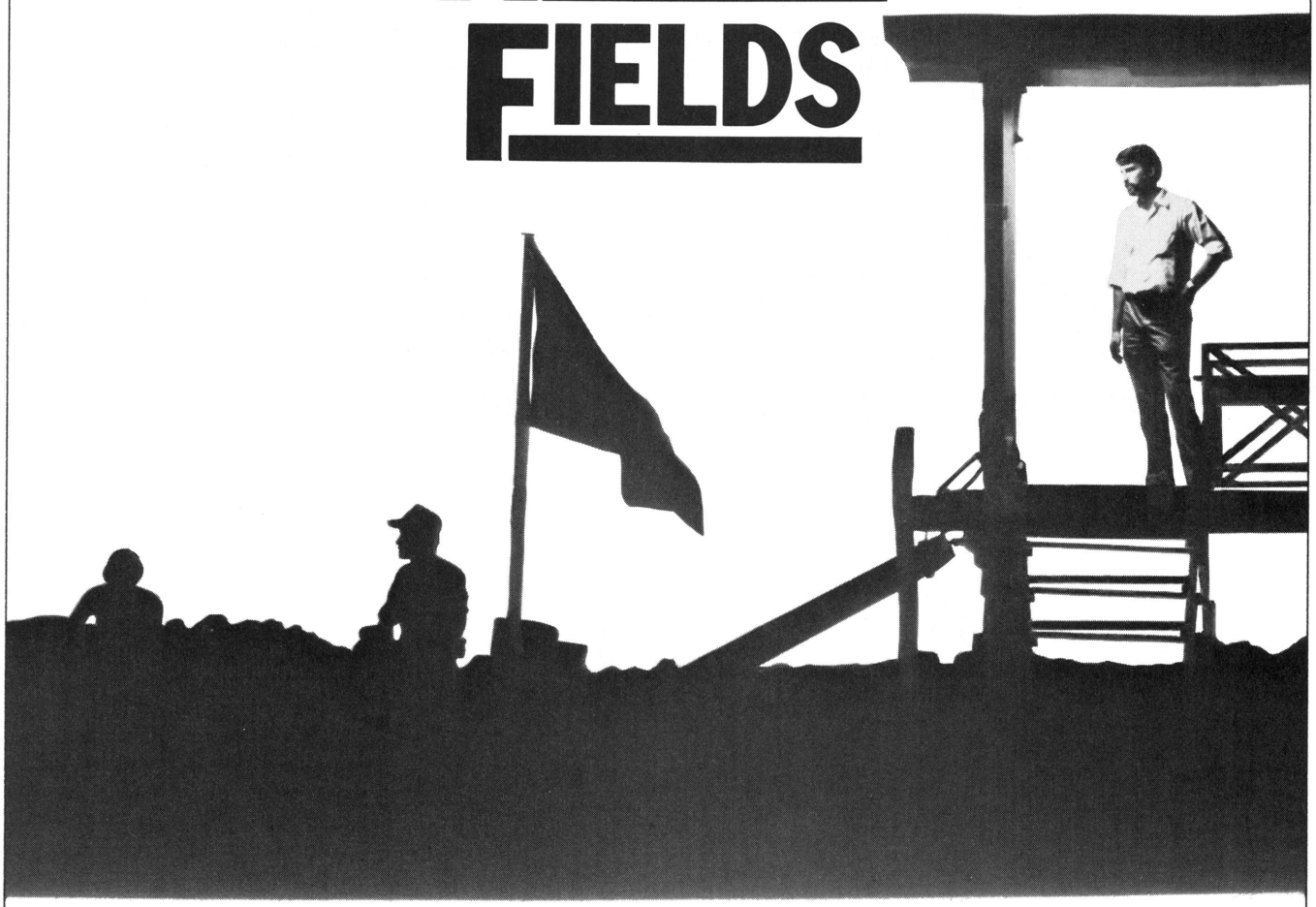
Chronos follows a mysterious energy westward, always moving, but rooted in our feeling of time. It's like a cloud chamber. You don't see the atoms, just their trail. Historically, people have congregated in places of high creativity like Athens and Rome. And then the energy vanishes, leaving behind its trail of remnants. You can't see creative energy, but you can feel it and see where it's been.

Chronos premiered in San Diego this summer and will appear at La Geode, the new OMNIMAX theatre on the periphery of Paris, later this year. △

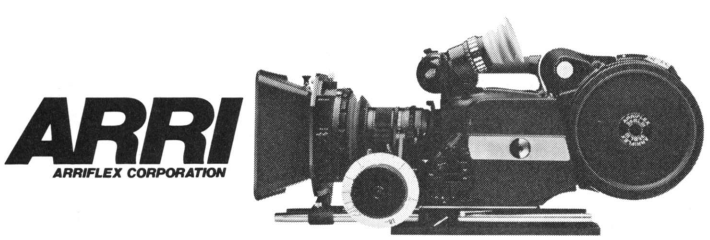
Ron Gold, a freelance writer and publicist, is the author of The Personal Computer Publicity Book, *published by Prelude Press.*

Chris Menges, B.S.C.
1984 Oscar Winner Best Cinematography

THE KILLING FIELDS



FILMED WITH ARRIFLEX 35BL-3 CAMERAS AND LENSES



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MAD MAX
BEYOND THUNDERDOME

by Phil Edwards

Produced by Terry Hayes & Doug Mitchell
Directed by George Miller and George Ogilive
Photographed by Dean Selmer

For cinemotographer Dean Semler, *Mad Max Beyond Thunderdome* marks a renewal of his association with Mad Max Rockatansky and his creator, writer/director George Miller. The three first got together back in 1981 for *The Road Warrior*, a movie both critically lauded and commercially successful.

But where *The Road Warrior* was filmed almost entirely on one location at Broken Hill in the far west of New South Wales, *Mad Max Beyond Thunderdome* ranged through a variety of interior sets and exterior locations in N.S.W. and South Australia.

The new film picks up on the warrior of the wastelands some 15 years after the events which climax *The Road Warrior.* The much sought after gasoline which precipitated the action of the previous saga is no more and what remnants of civilization are left in Australia have either banded together in small groups or wander the post-holocaust land alone. Max (Mel Gibson) is one of these loners – a quietly powerful individual making the best of what can be found in the immense deserts which he travels with his camel train.

"*Mad Max Beyond Thunderdome* proved far more challenging than *The Road Warrior*," says Dean Semler. "We were dealing with more varied environments than before and it was essential that each of the worlds created for the film have a distinctly different look." After Max's camels are stolen by a mysterious character, Jedediah (Bruce Spence) he makes his way to Bartertown, a rough and ready settlement ruled by the ironwilled Aunty Entity (Tina Turner) and her elite of Imperial Guards led by Ironbar Bassey, played by Australian rock singer Angry Anderson.

Although the outskirts of Bartertown were filmed near Coober Pedy, a small opal mining town in South Australia, the interior was actually constructed in the unlikely surrounds of a brickworks quarry 1500 miles to the east in Sydney. From the designs created by production designer Graham Walker and concept artist Ed Verreaux, a team of 70 carpenters and builders constructed a walled town, virtually in the round.

In lighting Bartertown, Semler treated the elaborate set as if it were a real town. "I had Johnny Morton, the gaffer, light it with practical street lights, the way you would wire and light a small village. We also required ambience, so we used four brute arcs 70 feet high on scaffolding in key areas. That provided the necessary backlight for night shooting. We placed individual light sources, usually redheads or blondies, within several of the small buildings within Bartertown itself. Wherever there was a window or doorway, we'd put in a light with an amber gel over it to give it colour and warmth."

Towering over Bartertown is Entity's penthouse, an 80-foot tall structure of steel topped by a star shaped tent. "We always wanted a glow coming from the penthouse during the night sequences and we achieved this with six mini-brutes inside. Apart from the practicals and the ambience arcs, the special effects department provided several light sources with burning camp fires around the town itself."

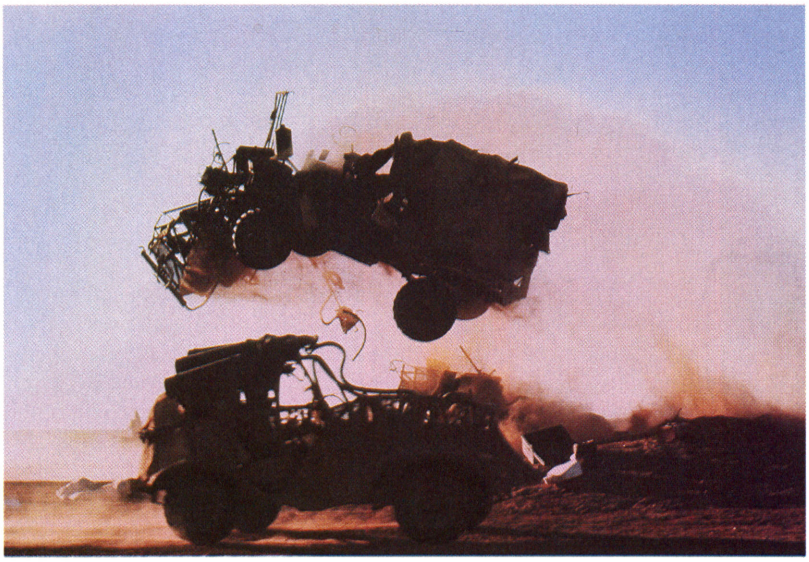
Once Max gains entrance to Bartertown, he strikes a deal with Entity. For the return of his camels, he must challenge Blaster (Paul Larsson) to a battle in Thunderdome, the gladitorial battleground of Bartertown, where all disagreements are settled by a fight to the death. Blaster forms half of a character, MasterBlaster, the ruler of Underworld, the source of the town's electricity. Located beneath Bartertown, Underworld is a Dante's inferno – a methane plant created by Master (Angelo Rossitto), a 34 inch scientist who rides around on Blaster's shoulders. Entity has recently experienced a shift in the political structure of her domain, as Master has increasingly required her to acknowledge that he is the real brains behind Bartertown.

To create the hellish Underworld, the art department built a spectacular set within the confines of a bull sale ring in the Sydney suburb of Glebe.

Says Semler, "We were looking for a low key, hellish effect. There were a lot of practical effects that created steam and flashes of firelight. We wanted to light Underworld with direct beams of light from overhead, as if there were little rays of sunlight coming through from Bartertown. I put in six par 64 spots, and they came down directly from above creating little pools of light. Though we had small lights coming from various cave entrances, these were our key lights."

Opposite: ***Mel Gibson and the tribe of lost children.*** **Left:** ***Tina Turner and retinue.***

Top: ***Gibson is stranded in the Great Australian Desert.***
Center: ***One of the many driving stunts in the climactic chase sequence.***
Bottom: ***Director George Miller (left) and director of photography Dean Semler (right) trek with their crew to the next setup.***



The heart of Underworld is the plant which created the methane. The centrepiece consisted of a Mack truck converted to run on rails with a maze of overhead pipes leading to the top of the set. From these issued clouds of steam to indicate the methane plant was working. To highlight this dramatic structure, Semler put in several 2K blondies to backlight and lift the steam effects.

The Thunderdome fight sequence presented Semler with a variety of problems. "It was very hard to light because it's a dome, a little like shooting in a fishbowl. Added to that was also the fact that almost all of the outside of the open steel structure was covered by 400 extras playing the spectators. Originally, when I first saw the designs for Thunderdome, I had the idea of lighting it from below, having the floor a grating with shafts of light coming up, presumably from Underworld. But that wasn't practical as the floor of the brickworks quarry we were filming in couldn't be dug into.

"What I did was to put in eight 1000 watt par 64 spots, encircling the perimeter inside Thunderdome. They were adjustable, like those in Underworld, so they could be panned and tilted to cheat from one shot to the next. That gave us a certain amount of light for key bits of action and also provided a good hard front light for Tina Turner in the royal box. It also meant I was able to dress the master lights in to hit Max and Blaster in key areas. Blaster has a lot of metal on his costume, and it obviously worked well with sidelight, providing lots of shine and highlights."

The Thunderdome fight, which lasts six minutes in the film, took seven nights to shoot – from sunset to sunrise. Added to the eight 1000 watt spots, Semler brought in four brute arcs to backlight the crowd clinging to the arena. "Thunderdome is virtually theater in the round, albeit violent theater. The four brute arcs were mounted on scissor lifts on each corner approximately 50 feet in

the air so we could adjust them as necessary," Semler says.

"They added to the general ambience and helped lift the smoke we put in. I was a bit reluctant to use too much smoke as it has been given a bit too much exposure in the past and I think it's time to ease up on it. But in this instance, when we saw the first dailies, just that little bit of smoke brought the place alive.

"We covered Thunderdome very well I think. We had up to three cameras shooting simultaneously at times, usually with 28mm or 30mm lenses. Trying to cut the light off the lenses presented a bit of a problem and was nearly impossible, so we had to live with a lot of flares. But as the spots were virtually footlights for the action, it really added to the general atmosphere we were looking for."

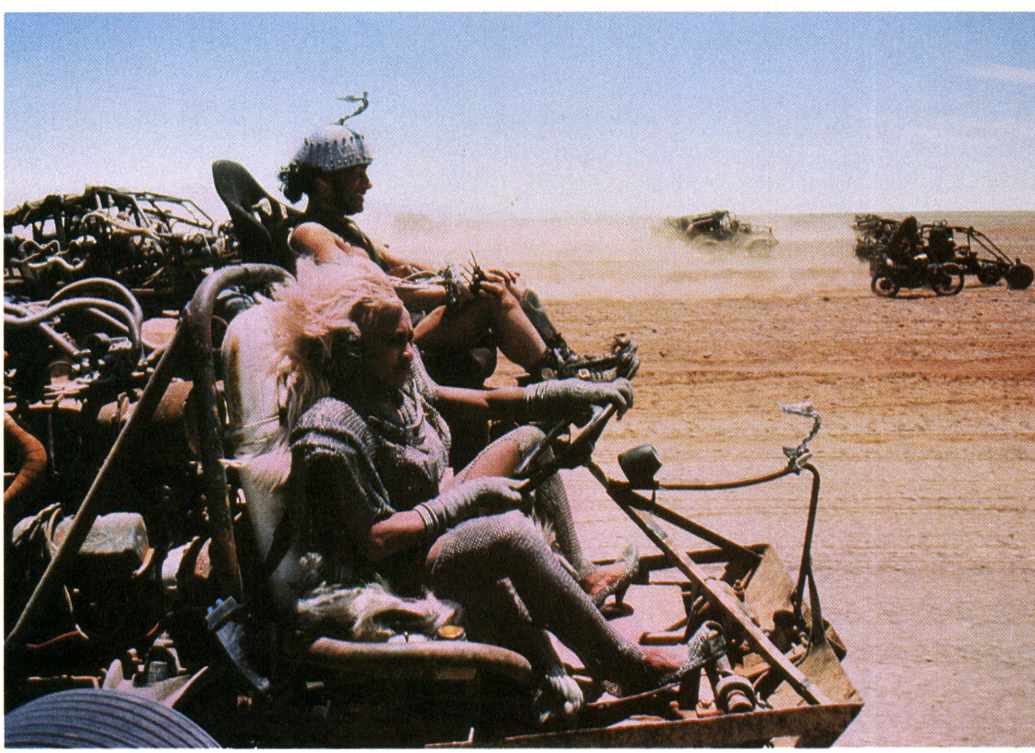
Throughout the night shooting, Semler utilized the high speed 5294 stock. As he explains, "I rated it at 320 ASA, which I prefer, instead of the recommended 400. The blacks stay richer and blacker without getting a smoky washed out look. It remains a true black and I think gives a better finished product."

When Max realizes he has been duped by Entity and refuses to kill Blaster, he is cast out into the desert to die a long and agonizing death. But before this can happen, he is found by Savannah Nix (Helen Buday) and taken to the idyllic Crack in the Earth, home of a tribe of feral children, the descendants of a jetliner crash during the days of the apocalypse.

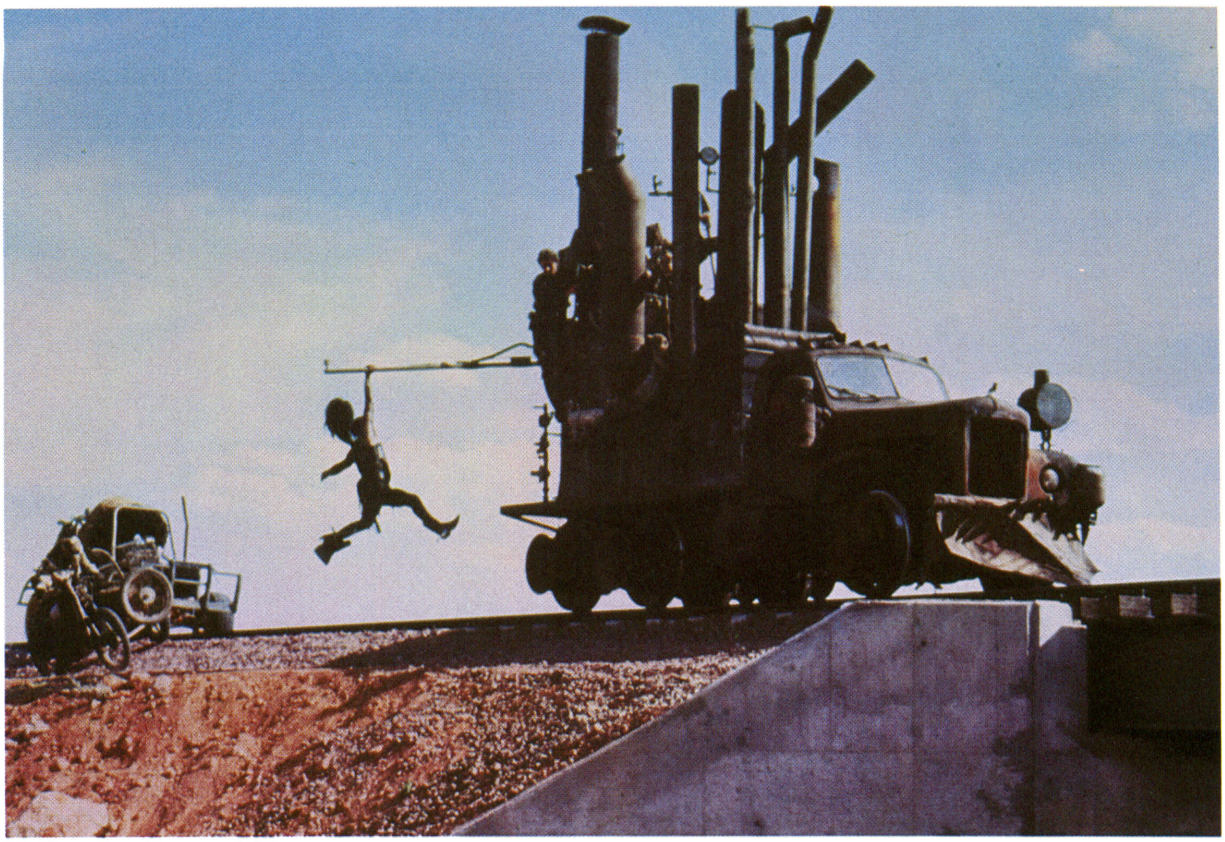
"Crack in the Earth was a fairly deep and narrow gorge in the Blue Mountains of N.S.W. It had a very high ceiling of overhanging rock which left only a small amount of sky above us. Although we were shooting during the day, the conditions forced us to use the 5294, again rated at 320 ASA. My daylight ambient reading was generally 100 foot candles, unless the sun came out from behind the cloud cover. But it only came out in little areas, so we were often left with vast areas in shade all day. It never stayed in one place longer than ten minutes, which was never long enough to plan shooting with sun," Semler says.

"We were rained out on the first day of shooting and on the second we had very heavy cloud cover and I was getting 100 to 120 foot candles. Then the sun came out and it dropped to 30 to 40 foot candles. I thought, 'This can't be!' Normally, you get a lot more light when the sun is out. Of course what was happening was the cloud cover was acting as a scrim, distributing the sunlight evenly down into Crack in the Earth. When the clouds moved away, it was just blue sky. So we used to wait for clouds to give us enough light, which was something of a paradox.

"I used three arcs to lift areas where necessary. It gave a very 'animal' look to everything, as though we were in a jungle. The



Top: ***Strange vehicles like this abound in Mad Max's territory.***
Bottom: ***Tina takes the wheel of a strange pursuit car.***



A wild ride for the feral children.

effect of the light on the children's faces was that it elongated their features and gave them an almost primitive look, which is, of course, what we wanted."

George Miller, Semler says, "is a very demanding director. It's not only a question of making every shot as good as it can be, but it's how good in every department – costumes, performance, make-up and background action. There's not an area of frame that doesn't have some sort of detail in it that's necessary for the moment. He likes to work in cuts and you can virtually see his mind picking out the cream moments he cares about and will use.

"There's no such thing as a simple set-up with George, it always seems to grow into something, that by the time you've completed it, is so much better than was first thought possible. What could be a simple shot of an arrow going into an arm shot against a blue sky, George will shoot with the world breaking up in the background, if that's what is needed to make it that much better."

An example of this attention to background detail occurs in *Mad Max Beyond Thunderdome* when Max returns to Bartertown with a group of children and steals the truck/train from Underworld. As the vehicle moves out amid a series of fiery explosions, courtesy of Mike Wood's special effects team, the action is intercut with the devastating effect the theft has on Bartertown. As Entity descends from her penthouse, giant fireballs mushroom skywards and the populace runs in terror. The entire sequence was shot in one take using multi-camera coverage.

"That sequence certainly grew! It wasn't in the initial script, the way we ended up shooting it," Semler remembers. "It was planned as a way of introducing all the major Bartertown characters into the destruction, all in the one shot. We were initally going to do it with Steadicam, but Toby Phillips had gone onto another production. As it turned out, I don't think we would have been able to fit the Steadicam into the penthouse elevator, so I shot it handheld, coming down in the elevator with Tina.

"It must have taken five hours or more to set up the sequence and of course we could only do it in one take, although we filmed a couple of small inserts later so we could develop the scene a little more.

"We started about 60 feet up in the lift. I had a focus puller with me because we were very tight on Tina's face. As we started to descend, Bartertown in the background started to explode. Mike Wood and his team had all the timings off the video split monitor, so he was watching the shot and calling the numbers on the effects explosions we had planned. By the time we reached the bottom of the penthouse, half of Bartertown had gone. When we stepped out of the lift following Tina, the first thing we saw was a stuntman on fire, flying through the air and landing in a puddle of

Top: ***Explosions rock Bartertown, "civilization spot" of a post-nuclear future.*** **Below:** ***Tina Turner handles Little Angelo Rossitto roughly.***

water to extinguish the flames. Tina then has a short dialogue with Dr. Dealgood (Ted Hodgeman) who is still trying to sell things during the destruction. While this is happening, there are various vehicles, Imperial Guards and something like 400 extras running around in seeming chaos.

"It was about a 200 degree shot of Bartertown, there was very little of the place behind us. You see about 80% of the town in that one shot, which on the take must have lasted about a minute. We had three other cameras in key locations, one which captured The Collector (Frank Thring) running into close-up amid the crowds while explosions went off all around him. I think it worked well and developed into a beautiful sequence."

The destruction of Bartertown and the theft of Master instigates the spectacular chase which climaxes *Mad Max Beyond Thunderdome*. To film this sequence, the entire cast and crew were moved by truck, train and plane to Coober Pedy.

High energy action and chase scenes have been the highlights of the previous Mad Max films and *Mad Max Beyond Thunderdome* is no exception. With Max, Master and several children aboard the truck/train, Entity and her Imperial Guards set off in hot pursuit. With temperatures reaching up to 130 degrees, the emphasis was most definitely on the 'hot' during the four weeks it took to film the exciting chase.

As harrowing as this sequence appears on film, just how dangerous is it shooting a Mad Max chase? "It seems as though it could be dangerous, and I guess it could be, if it weren't for the amount of planning that goes into

Helen Buday, leader of the children, faces the deadly pursuers.

every take. We had absolutely no problems at all during the weeks of running up to 50 kilometers per hour over very rough ground and with enormous amounts of dust. That's pretty fast when you're on a camera platform only six inches above the ground with a group of over a dozen vehicles thundering down on you, maybe only a few feet away," Semler calculates.

"It feels very exciting, but looking through the lens, it's simply a matter of looking at the shot. My whole judgment is on that and not whether it's dangerous or not. I'm securely harnessed into the tracking vehicle and there are other people who are judging distances and speeds, like Merv McLachlan, who usually drove the camera car.

"Quite some time before we move out on a stunt, before anything's done, there's always a lot of discussion with the stunt coordinator, Grant Page, and the individual drivers, so there's about 20 drivers who have to be briefed. Although a great deal of planning goes into speeds, distances and formations, there is always the possibility of something unforseen happening. If for some reason one vehicle does something slightly different, it can affect 19 vehicles behind it. That's when something can go wrong. But in every case where that does happen, the stunt is aborted."

All the stunts on show in *Mad Max Beyond Thunderdome* were covered by multi-camera setups. Says Semler, "With stunts, it's of course essential to have more than one camera on something that you can only film once. We had up to five cameras on the stunts. As George Miller likes to work in cuts, he chooses his angles and lenses very carefully. You can shoot the most spectacular and graphic scene of a car flying through the air, but if it's not going to cut into his pattern, there's no point in shooting it.

"Normally, in covering a stunt, there would be a Ned Kelly, which hopefully would capture the point of impact which is often the most dramatic shot of the stunt. There are shots immediately preceeding it, which would be done with another Ned Kelly. It might be a tight shot of a set of wheels coming straight towards the audience. There would be another camera covering all of the action from the optimum position, in case anything happens to the two Neds – that way you have cover. But it's not just 'safe' cover, it's good and interesting angles. A fourth camera would also provide similar 'safety' coverage and a fifth would be a bit of a bonus if it happened to be available."

Named after Australia's most famous outlaw, the Ned Kelly origins seem somewhat vague. "I'm not sure where the Ned Kelly came from. There have always been camera protection units of one kind or another in the past for cameras that were put in hazardous situations, somewhere they are likely to be covered in debris as the result of an explosion.

"But the Ned Kelly as we know it, was introduced to me by a grip on *The Road Warrior* where it became a very necessary tool. This grip had used one before on stunts and it was affectionately known as a Ned Kelly because it looked like the suit of armour worn by the bush ranger. It's a steel beer barrel, cut in half lengthways with a camera mount inside. At the top of the barrel a slot is cut for the lens.

We put optical flats in there, as well as glass filters. The flats are generally acrylic, unless we're working in exceptionally dusty situations. Acrylics can cause problems if there is a lot of dust prior to the usable part of the shot, as they can gather dust very quickly and act like a number 15 fog filter!" laughs Semler.

"They are operated through long leads and would be generally put near the position of impact, where you would never put an operator, but where there was a reasonable amount of safety for a camera on its own in that sort of housing. We had two Neds made up for *Mad Max Beyond Thunderdome*, but lost one unfortunately.

"We placed two in a position where a big car was flying over a ramp and all the calculations were that it was going to stop just short of the two Neds. Both cameras has 30mm lenses, so were in a good position to get the car landing and crunching. But it went just a little further than anticipated and landed right on top of one of the Neds. It destroyed the camera, a little 2C Arriflex, and also the film – which was a pity. The whole point of the Ned Kelly is that it can be hit, but you can usually save the film. But in this case, the

impact was so great that the magazine burst open and we lost the lot. We always use the simplest cameras for the Neds, never Panavision equipment. The other Ned survived though, and we pulled out quite a few nice shots with it."

To capture shots of stuntmen flying through the air during the chase sequence, Dean Semler utilized a Panavision Panastar. "Where it was necessary to go up to as much as 90 fps, the Panastar proved ideal. We would set it up in a situation close to the action, where it wasn't so dangerous for an operator as for the stuntman who might fall on top of a group of camera people.

"We'd have the Panastar sitting on its own, with Grant Page or a stuntman standing by ready to pull it out if it looked like the stuntie was going to land too close to it or on top of it. Normally it was set very close to the airbag where the stuntman was going to land. We'd put a 28mm or a 30mm lens on it and the stuntman would come flying straight down towards the camera. With a 28mm there is an amazing depth of fall, which at 72 f.p.s. can look sensational, and that's only on a 30- or 40-foot fall. That might sound super slow motion in capturing the entire fall, but the area of shot that George Miller uses would only be a fragment cut into the overall editing of that particular stunt."

George Miller first used the technique of undercranking action cuts while making *The Road Warrior*. "On both the last film and now *Mad Max Beyond Thunderdome*, George constantly fluctuates camera speeds on many of the action set-ups, ranging through 19 or 23 fps with 22 being the average. It gives those cuts a little bit of electricity, a bit of an edge. Sometimes, if we were shooting a lead artist on a vehicle, we might go down to 19 or 20 to increase the apparent speed and still keep it safe. We only went to overcranking a few times, generally for cars or people flying through the air. Then it was in the 64 to 70 fps range."

Although a great deal of the high speed action which climaxes *Mad Max Beyond Thunderdome* was shot from moving vehicles, some of the most spectacular segments of the chase were filmed using simulated travel. Says Semler, "I'd heard of simulated travel before *The Road Warrior*, but when we saw the results on that film we moved into the technique with a great deal of confidence on *Mad Max Beyond Thunderdome*.

"There's a sort of boldness about doing simulated traveling shots and in a sense I think we have become masters of the technique. For years people have tried to keep the camera steady on traveling shots by inventing devices like Steadicam, cranes, dollies and so forth. But the object of simulated travel is to keep everything as *unsteady* as possible, but within the realms of believability. You've got to feel a certain amount of judder and vibration from the camera in order to make it real," Semler says.

"We set up a rig with a hustler dolly, on top of which we put a mini jib arm. The hustler dolly was on tracks and the camera on the end of the jib arm. That way we had movement in any direction we wanted, whether it be for a crane up or down, swinging sideways or around. It also allowed us to keep up a constant shudder which is the important aspect of simulated travel. The shudder depends of course on what sort of vehicle you are simulating travel with. A plane is certainly different from a car, just as a car flying through the air is different from a vehicle traveling on a road.

"You normally shoot it with a sky background as it needs to be 'horizon-less' and there's always a lot of wind and dust going onto the vehicle. If the camera just does the movement by itself, there's still something lacking, so you have the movement on the vehicle itself. This is achieved by having at least four rockers with

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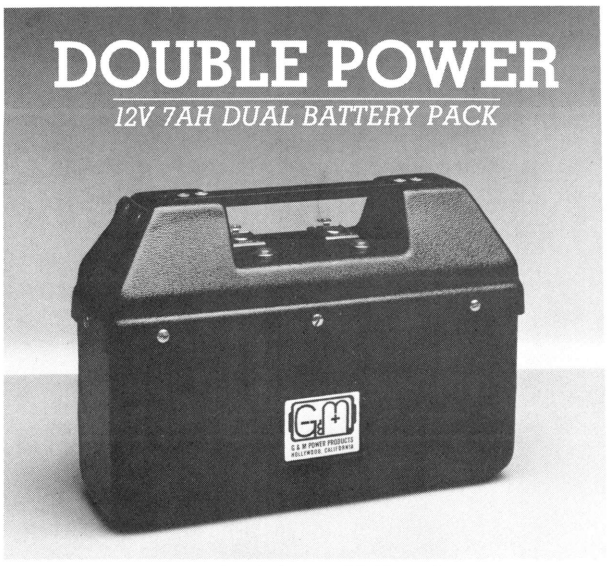

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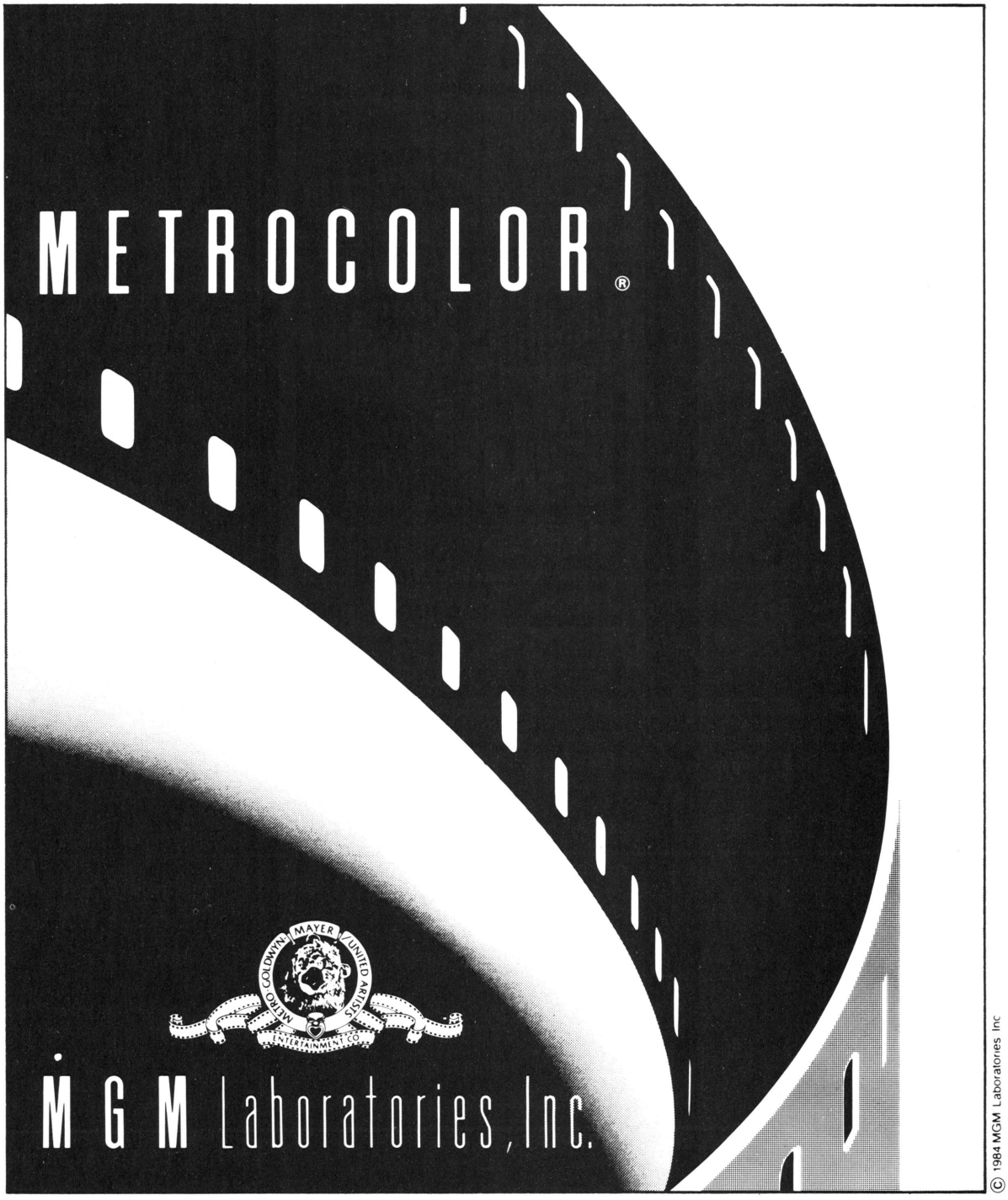
long rods on fulcrums, lifting up the front and sides of the vehicle constantly keeping it out of rhythm. Even though we did most of our simulated travel shots while on location in Coober Pedy, we filmed a couple of inserts right in the middle of an industrial complex in Sydney, so it's a technique you can do almost anywhere."

Once Max has thwarted Entity's plans to recapture Master, the action of *Mad Max Beyond Thunderdome* moves to the ruins of a devastated Sydney. This city in ruins was a highly detailed model measuring 30 by 40 feet built in a warehouse in the Sydney suburb of Alexandria.

"Shooting the model turned out to be the biggest lighting job on the whole picture." Says Dean Semler. "This was the first model shot I've done and as always with models the biggest problem is depth of field. We used a 30mm lens at about 11, which gave us depth from about three through sixty feet. We had eight brute arcs and nine maxi brutes burning as well as a bank of twenty-four 1000 watt par 64 spots. The latter were required to light the 100 foot by 40 foot cyclorama painted by the scenic artist, Billy Malcolm."

"An interesting aspect of working with models is the way you think about them. I think your judgment becomes slightly different in looking at a model. You become aware that it is a model measured in feet and not a real city of several square miles. You tend to ask yourself much more about the lighting – whether the sun would hit a building in a certain way, whether one building would be illuminated while others remained in shadow, how the sun would strike the girders of the Harbor Bridge and so forth.

"After the first day of testing, I was driving home with Johnny Morton and our route took us across a bridge where we could see Sydney laid out before us, just like the model. It was what we had been looking at all day in the warehouse. We realized then



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that we had to shoot the model as if it were a real city. All the fears of looking at it like a model were only there because it was a model."

To further enhance the reality of the sunset shot which closes *Mad Max Beyond Thunderdome* Semler devised a traveling sun. "When you drive down a country road and look across to the horizon, the sun never seems to change its position, apart from getting lower, relative to where you are. House and trees can go by, but the sun just seems to sit in the same place.

"There's a point of view shot in which the children are flying into the city in a small plane. They are looking all around them at the canyons of destroyed buildings. I thought it might be worth having a look at moving the sun across the background, behind the model buildings but keeping it in the same relative position to the camera. We simply had a brute arc with some half 85 gel on it pushed along 30 feet or so by four operators. It worked very well and was incredibly effective, giving great depth to the shot. It makes it look like an infinity horizon, instead of just seeing a small sun in the background which starts at right of frame in the beginning of the shot and finishing left of frame at the end.

"Nothing in *Mad Max Beyond Thunderdome* has been particularly difficult. It really was just a matter of having the time to do it properly. But I must admit, that the most challenging sequence, for me, was that last sunset model shot – simply because it was an unknown area," Semler concludes. △

Phil Edwards is an Australian free lance writer.

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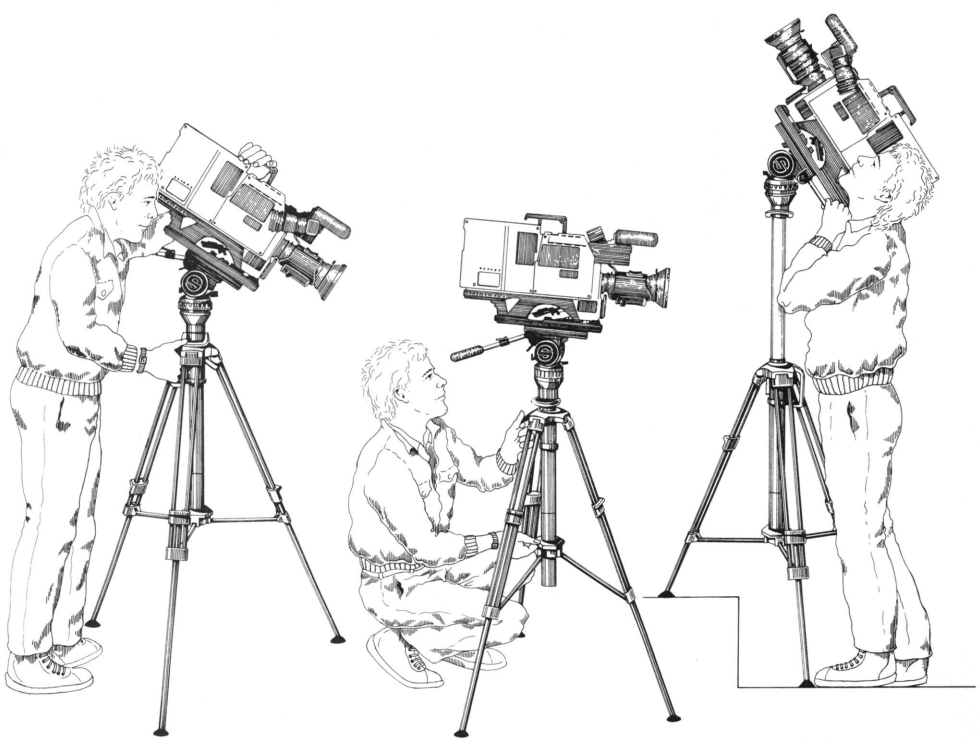

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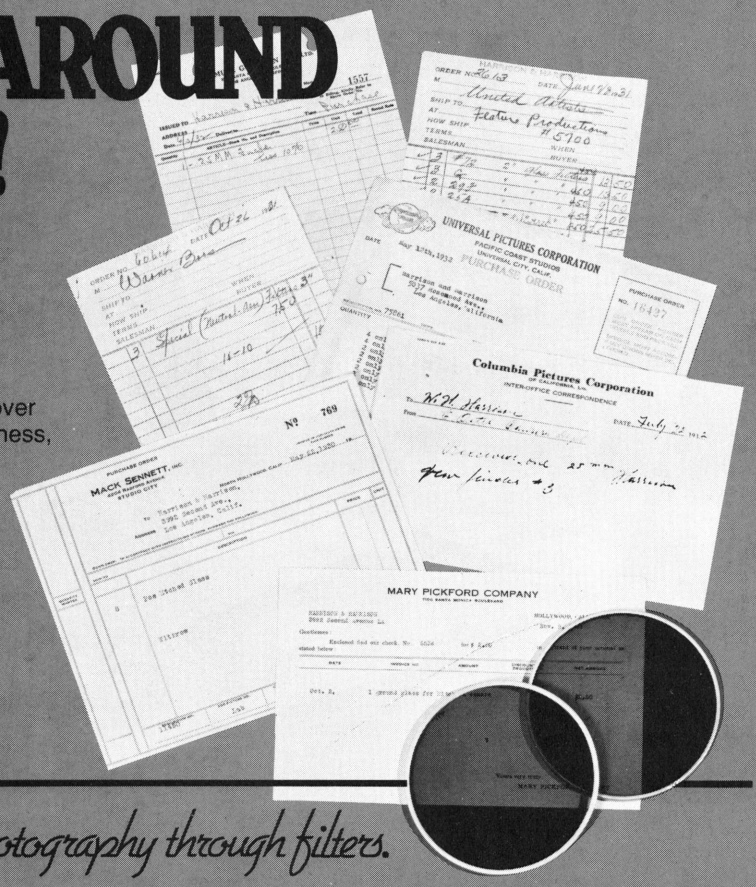

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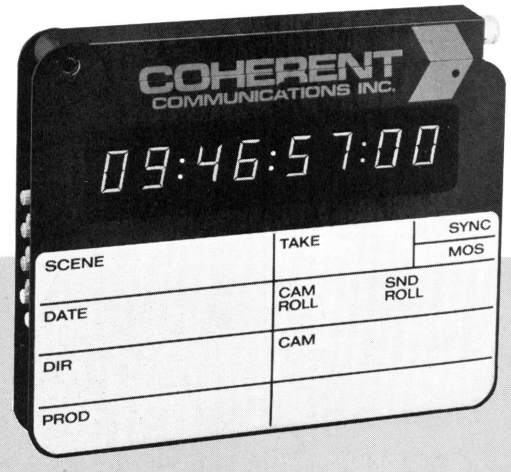

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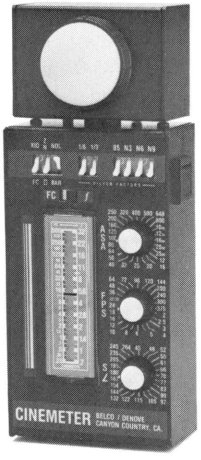

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Saving Classics on Tape

by Herb Fischer

As a result of the boom in the home video industry, the VCR population of the United States has mushroomed to such an extent that home video programming and distribution companies can now offer consumers wider choices of programming than was previously possible.

One such "new" programming area that is rapidly gaining ground involves the release of classic, older films on videocassette. In fact, some companies have made it their primary focus to cater to viewers who prefer the intrigue of Bette Davis and the macho of Humphrey Bogart over today's brand of stars. These classic motion pictures are especially appealing to film buffs who appreciate the outstanding acting and directing techniques inherent in these masterworks, many of which are in black & white and were produced during the 30s, 40s and 50s.

Last September, the Key Video division of CBS/FOX Video made a bold move when we released our 24K-Gold collection of classic films. The collection, which received nationwide attention, spans a variety of entertainment genres, and features such acclaimed films as *Dark Passage, I Am a Fugitive From a Chain Gang, The Fountainhead, Red River, The Sea Hawk* starring Errol Flynn, a trilogy of brilliant Busby Berkeley musicals.

In releasing the films, one of our primary objectives has been to provide film lovers with videocassette versions of the purest form and highest quality possible. Doing so involves extensive research for original footage of each film, and also involves a sophisticated film-to-tape transfer process.

Transferring an aged, often fragile film to state-of-the-art video is incredibly complex. At CBS/FOX Video, we handle this process internally, so that we can maintain strict control over product quality. We operate a major film-to-tape transfer and videocassette duplication lab in Michigan, and are fortunate to have the film-tape operation handled by a seasoned group of video professionals, who, in addition to being technical experts, are true artists and film lovers.

Henry Daniell and Errol Flynn match swords in* The Sea Hawk *(1940).

To make a video master from a film print, we use a Rank Cintel film-tape transfer machine. This apparatus allows us to do all types of things with a film print. We can blow up elements in a scene, re-position elements, zoom in or out of a frame, and adjust contrast and brightness. The Rank also enables us to correct errors in lighting or color balance in the original film itself. We can go through a film and, on a scene-by-scene basis, make the sky more blue, the flesh tones more vivid, and perform any number of functions that make the videotape version a perfect replica of the original film.

The real challenge comes before we actually go ahead with the film-to-tape transfer. The first and most vital thing that we must always do when handling a clasic title is to locate all of the original film elements. Our goal is to find the original camera negative, but that's usually an impossible task. Failing that, we try to locate the next-earliest version to the camera original, known as an intermediate.

Intermediates are never seen by the movie-going public, but they are

Lauren Bacall and Humphrey Bogart are the menaced lovers of* Dark Passage *(1947).

Paul Muni gives an outstanding performance in* I Am a Fugitive From a Chain Gang, *an important Warner Bros. drama from 1932.

used to duplicate the many prints that are distributed to theaters. The intermediates, which take the form of either internegatives or interpositives, are made solely to strike the hundreds of copies that are used to supply cinemas around the world.

Tracking down an intermediate, or even finding a full-length version of a movie house print, is no easy task. During the early days of filmmaking, the studios were less than diligent about maintaining accurate library systems. Sometimes we find that important sections of a film are missing entirely. This is often due to the fact that when the film played at different movie houses around the country, those portions of the film that were deemed politically or socially controversial were edited out. More often, the print was simply mangled by the projector.

We make every effort to market the entire full-length version, which can be very expensive and involve real detective work. To release as complete a version as possible, the Key Video staff goes through all its special film research contacts. These include archival sources such as the Library of Congress in Washington, D.C., the film department of New York's Museum of Modern Art, relatives of the actors, producers, and directors of the movies – anyone we can find who may have been associated with a film we are seeking. I can't begin to tell you how many times a vintage film has been found in somebody's attic or garage.

As an example: when Key Video chose to include the Errol Flynn favorite, *The Sea Hawk,* in its 24K-Gold collection, the available data listed the film's running time at 110 minutes. However, the famous 1940 pirate adventure, directed by Michael Curtiz, was actually longer. We learned that when it made its motion picture debut, *The Sea Hawk* was 126 minutes in length. We searched all over until we found an old nitrate print. That, however, was only 122 minutes in length, meaning there were still four minutes of the original film that were missing.

We were determined to find the missing segments, and we undertook an extensive research campaign. Finally, one of our contacts in England located a version of the film that instead of being 126 minutes, had a running time of 128 minutes. What we unexpectedly wound up with is a version of the film that has never been seen in the United States before!

But that wasn't the only title in the collection with which we had to put forth some extra effort. A real artistic challenge manifested itself with the 1955 film, *The Left Hand of God.* In this film, Humphrey Bogart stars as an escaped American serviceman who, in order to evade his would-be captors, disguises himself as a priest and seeks refuge in a missionary hospital in China. At the time this motion picture was made, wide-screen films were all the rage, and appropriately enough, *The Left Hand of God* was shot in the then-current wide-screen ratio of 2.15 to 1. TV screens, however, have a ratio of 1.33 to 1, meaning that if we simply transferred the original color film, portions of important action occurring at the far sides of each frame would be lost to the home viewer.

Let's say for example, that on the far right of the screen, a character raises a gun and fires a shot, hitting a character to the far left of the screen. If we merely transferrred this original footage "as is," all the viewer at home would see is what happened in the middle of the screen – which in this instance would be nothing at all. Absent would be the shooting of the gun and the victim being hit, since these actions would be taking place outside the viewing confines of the TV screen.

To overcome this problem, we employed some of the sophisticated electronic capabilities of the Rank Cintel film-tape transfer system. Our technicians used "pan and scan" and blow/up repositioning techniques to capture important action at either side of each frame.

Using the Rank Cintel, we would focus on the screen right action as the gunman fires his shot, we would fill the frame with this action, then we would electronically cut to screen left as the victim is hit and similarly fill the frame with this. Lastly, we cut back to right screen to show the smirk on the

gunman's face. While this is not exactly the way the movie-goer would have seen the sequence, for the home viewer, we are able to capture, electronically, what the director wanted the audience to see.

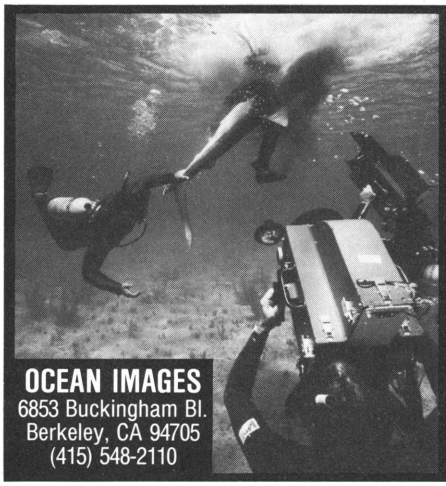
In transferring widescreen movies for the home video viewer, both technical and artistic virtuosity must be employed so that the film retains a totally natural appearance, one which is faithful to the moviehouse version.

In many of our films, at least 1,000 aesthetic judgments of this nature are made during the film-to-tape transfer process. When we are all pleased with the creative results of the Rank Cintel operation, we make a finished one-inch videotape master. This master tape is then taken to the duplicating lab.

The duplication process allows us to make thousands of copies of a film on ½-inch videocassettes in the Beta or VHS formats. Because of the stringent quality control procedures we utilize during the duplication phase, each completed copy – the material that consumers take home – matches as perfectly as the ½-inch format will allow, all of the technical qualities of the original master tape. To ensure that there are no errors, we electronically monitor duplication of each tape as it's being made, and we then visually inspect every copy before it is shipped to the dealers and distributors.

The availability of such Hollywood classics on videocassette is of major significance to the serious film lover. First of all, video is certainly much less expensive to buy and maintain than is film. It is also infinitely easier to use, and videophiles needn't concern themselves with changes in temperature and humidity when it comes to storing the tapes; video is characteristically hardy. In addition, home video now permits film students, professionals in the field, and all cinema lovers to study carefully any section of their favorite films conveniently and quickly. Viewers can fast-forward, rewind and freeze-frame merely by pushing a button, and without causing the slightest damage to the videotape. △

Herb Fischer is vice president and general manager of Key Video.



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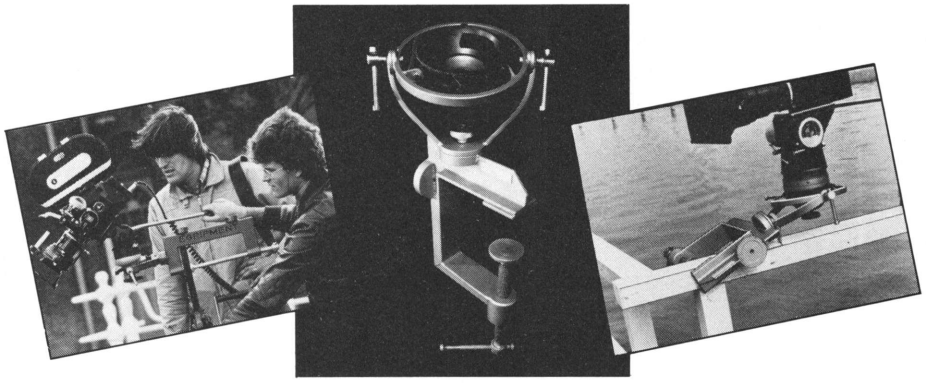

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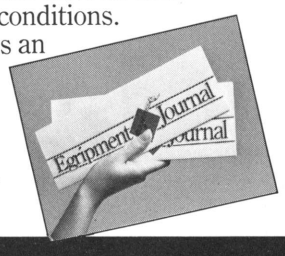

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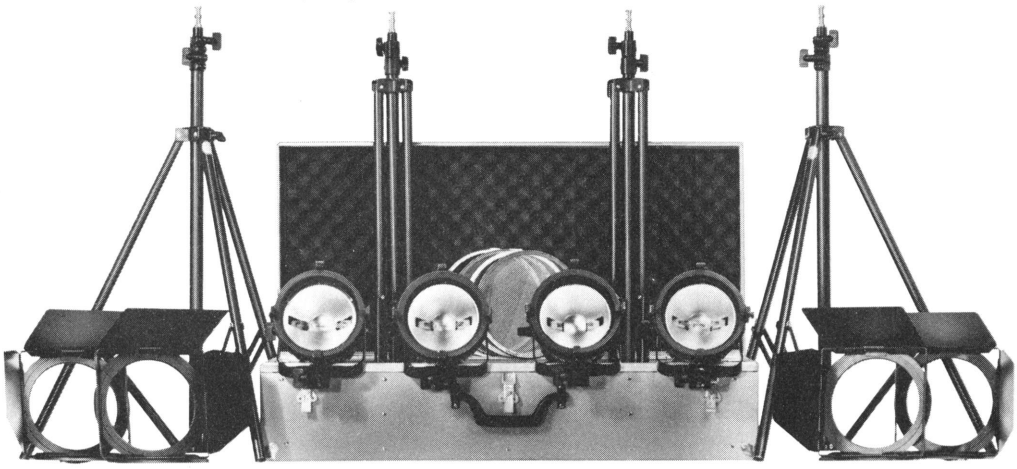

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3-D in India

by Christopher James

India produces more feature films than any other country. Indeed the State of Madras alone, with a yearly output of approximately 450 films, out-produces even the U.S.A. Yet this populous Asian nation had never produced a stereoscopic motion picture until August 1984, when its first full-length 3-D motion picture, *Kuttichathen,* was released, and became India's number one grossing film by January 1985.

This event was the fulfillment of a 20-year dream for industrial film producer Thomas Easaw, formerly of Karala, India, now residing in Denver, Colorado. A graduate of Denver University with a master's degree in communications, he spent the past 20 years in exhaustive research and preparation, including experimenting with stereo still photography and studying books on stereo cinematography. He found Lenny Lipton's "Foundations of the Stereoscopic Cinema" (Van Nostrand Reinhold, 1982) very helpful. Easaw made it a point to see every "depth movie" that was shown in or near Denver, including *Parasite,* and was greatly impressed with the 3-D effects of that film.

Easaw trained with Chris Condon, president of Stereovision, in the use of their 3-D camera lens system. Condon was then on location in Florida consulting on the filming of *Jaws 3-D.* After receiving persistent long-distance telephone calls, he agreed to meet with the aspiring young Colorado filmmaker upon his return to Burbank, California. Together they discussed the logistics and technology of the proposed India 3-D project.

Simultaneously, Mr. Apachen, chief executive of Navodaya Studios, India was in touch with Stereovision regarding the possibility of such a project. What was needed, however, was someone who could coordinate all 3-D aspects of the film requiring close liaison with Stereovision in Burbank, California. Thus Easaw became executive producer of *Kuttichathen.*

Easaw then went to Hollywood to receive practical training in the use of the Stereovision system. There he met with David Schmier, cameraman on *Parasite* and *Metalstorm,* both filmed in Stereovision. Schmier had received valuable 3-D experience under director of photography Mac Ahlberg. Ahlberg had studied 3-D extensively and had photographed the first 3-D film made in Sweden back in 1972. Ahlberg's medium budget *Metalstorm* was rated by critics as having ". . . the best 3-D effects of all the recent films," including some from major studios.

3-D off-the-screen effect for Kuttichathen, the "floating beer tray." **Left:** ***Filming in 3-D with 20mm lens at water level. Jigo in white hood, 3-D advisor David Schmier at right.***

Schmier agreed to go to India to serve as 3-D consultant and to further train Easaw. Before his departure, John Rupkalvis, 3-D effects consultant on *Metalstorm,* and Condon, made

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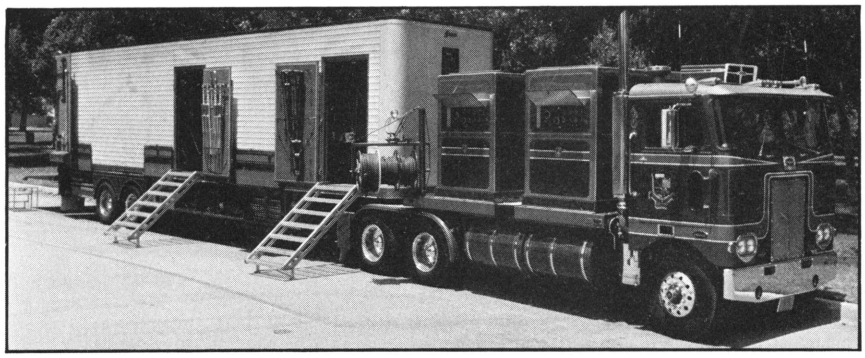

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sure that Easaw and Schmier received additional training with the latest Stereovision system.

Produced entirely in Stereovision, *Kuttichathen* has become a big hit, perhaps because of a combination of fortuitous events, talent and intelligent planning. In addition to the novel attractiveness to Indian audiences of seeing an Indian movie with three dimensions for the first time, the producer, Jose Punnoose of Novadaya Productions, chose an excellent children's story to show off the impact of 3-D. *Kuttichathen* means poltergiest, and 3-D effects are used extensively to show all the wondrous powers of the "friendly ghost." Critics in India acclaim the consistent use of the stereoscopic "off the screen" process. All age groups are flocking to see it. Playing to full houses in over 40 cities at the date of this article, it has broken many "house records."

Filming of the story, which was done entirely in Karala, Southwest India, was a new experience for the Karalan production company. Punnoose budgeted more than twice as much on this film as on any of his previous 27 films. This included a fully revolving stage that allows the actors to "climb walls and walk on ceilings." Exteriors were filmed with the aid of archaic dollies, push carts, elephants, and enthusiastic villagers. The crew waded through rivers to film spectacular 3-D shots with beautiful water foregrounds. Most of the photography was done with a Mitchell NC reflex (Armistead Conversion) and an ARRI II C BNCR mount conversion by John Russell of JAR Enterprises in North Hollywood. The film was shot on Eastman Color, bright exteriors on 5247 stock and evenings or interiors on 5294. High key lighting was used whenever possible to enable maximum depth of field sharpness. Fill light and reflectors were used for good shadow detail. The optics used on this film were the 20mm, 32mm, and 50mm focal length, and were supplied in BNCR mount.

Nearly all pictures filmed in India are filmed M.O.S. (without sound) This is because looping in several languages is required in order to accommodate the many language groups of India. This posed no problem for the 3-D photography which proceeded rapidly and

was completed on schedule.

Kuttichathen's phenomenal acceptance has borne out the faith and dedication of several enthusiastic industry people working together half way around the world. It was directed by Jijo and the director of photography was Ashok Kumar. Condon, Easaw, Rupkalvis, Jijo, and Kumar also knew that the inconsistent 3-D projection quality in the U.S.A. had caused problems with audience acceptance. It was decided to put every aspect of 3-D under the direct consultation of dedicated and trained 3-D specialists. This training extended to the camera crews, lab technicians, and even to the projectionists in remote villages. The comparatively small extra production and projection cost was more than made up for in better audience satisfaction. Meticulous 3-D projection quality of *Kuttichaten* by projectionists trained by Stereovision and supervised by Easaw's Stereoptics, Ltd., of Madras, had a lot to do with its success.

It is ironic that India's film industry, which often is identified with shortcomings in technology, may have started off an encouraging new boom with better controlled 3-D than the U.S.A. Stereoscopy is an enhancement of motion pictures, just as sound, color, and big screen format are enhancements. It deserves a chance to prove what it can do for top of the line stories, actors, directors, special effects, choreography, photography, and realistic budgeting. If all of these elements could be brought together in really state-of-the-art 3-D, the new momentum begun in India just might keep right on rolling. ■

Christopher James is an expert in 3-D cinematography and has worked on the development of 3-D systems.

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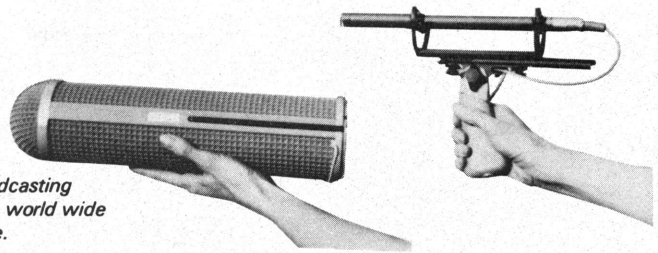

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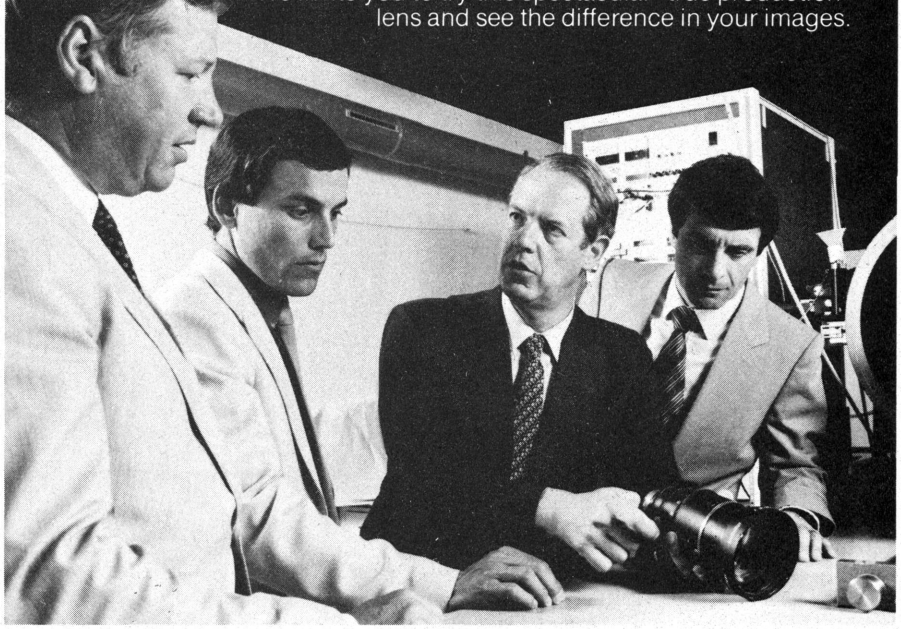

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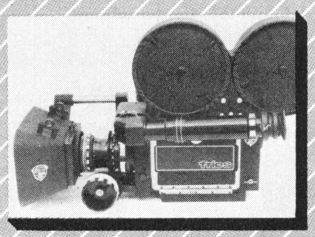

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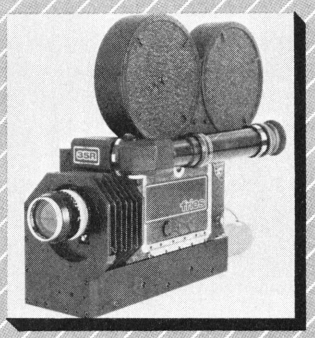

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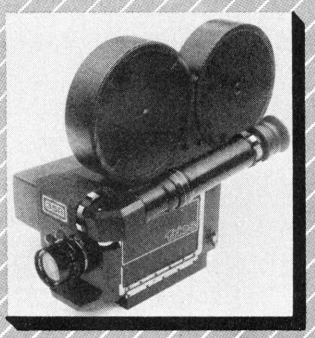

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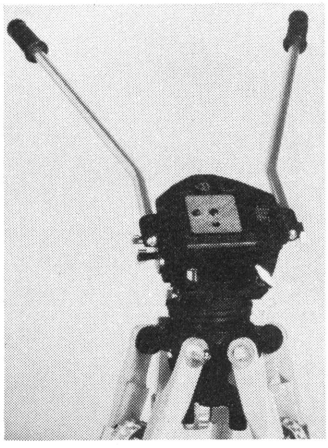

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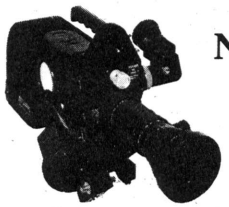

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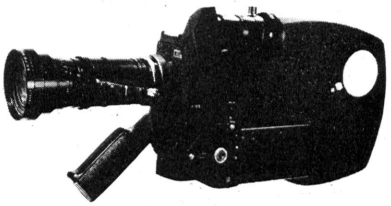

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Vistascope, a Wider View

by Cheryl Spain

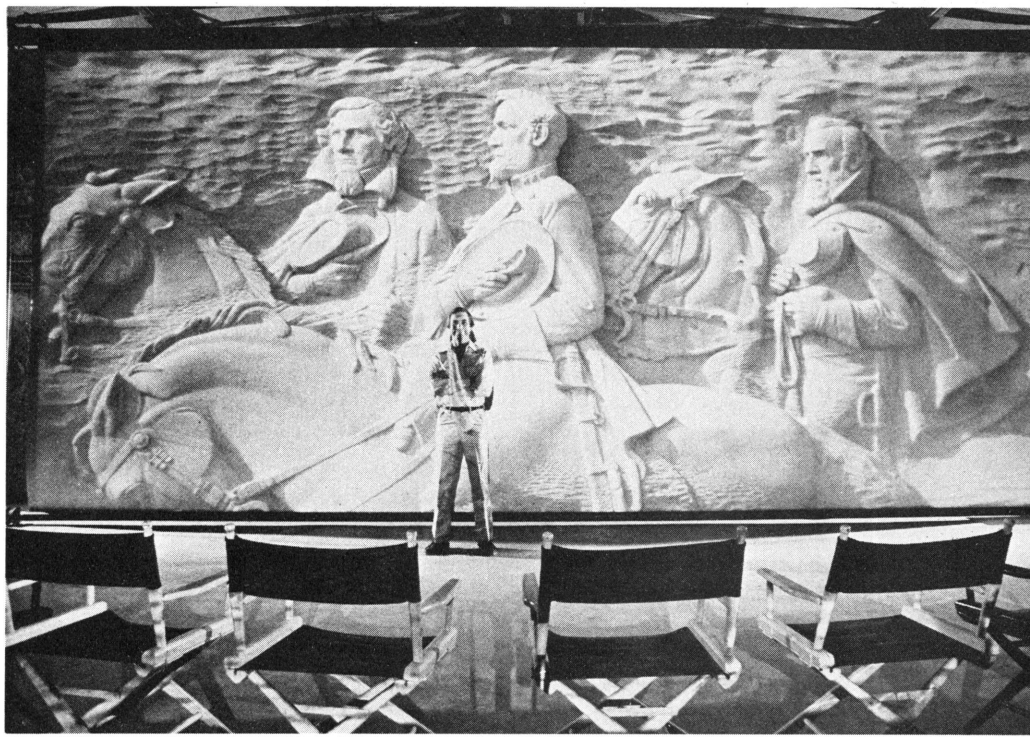
Vista means a view; scope, a range of view. Combined, they become Vistascope.

Vistascope is the trade name for several wide screen film systems developed by Kirk Wooster, an Atlanta film producer, cinematographer, and president of the Vistascope Corporation. They are the result of new technology, utilizing special lenses to create the gigantic wide-screen peripheral vision effect of 70mm "super shows" on regular 35mm film at a fraction of the 70mm cost.

Wooster calls his two systems Vistascope 35 and Mini-Max. Vistascope 35 is a wide plus tall system designed for medium size theater seating of 200–400. Projection size is up to 40′ x 50′. Standard sound is quadraphonic with 24 channels available.

Wooster describes it as "a full aperture 35mm with an aspect ratio of 1:33/1. The picture area is .735 x .980 which has approximately 25% more picture area than the standard Academy aperture. "We are using this system for custom production and to print down films produced in the Imax format, since Vistascope is compatible with the Imax ratio. We are distributing several films that were photographed in the Imax format – *To Fly, Flyers*, and *Energy, Energy* to science museums. Our first installation for this format is Discovery Place, a science museum in Charlotte, North Carolina." Wooster says.

"Our concept with this system is to provide giant, wide screen presentations to those theatres which cannot justify the 70mm equipment cost," adds Wooster. "However, with a Vistascope production and Vistascope equipment, a wide screen presentation can become a profitable venture for the theatre. We will be distributing our own custom films in this system in the near future."



Wooster in front of Vistascope image projected on 30′ x 11′ screen. Image is projected from a 30′ distance.

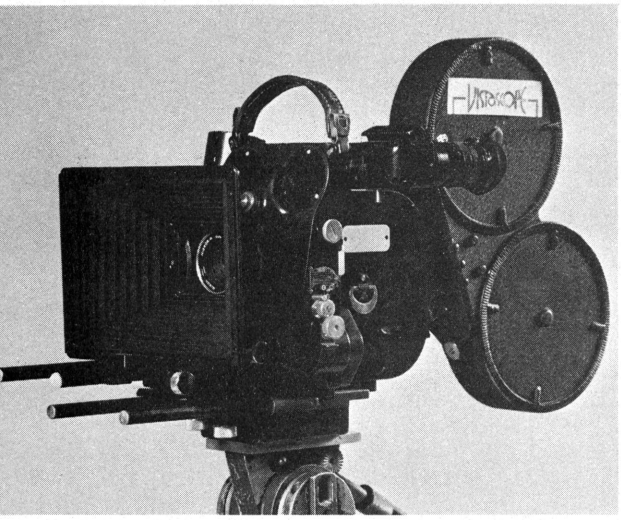
The second system is appropriately called Mini-Max – for minimum space – maximum screen. It is a 2 perf 35mm wide screen system designed for projection where ceiling height is a factor, such as conference rooms, classrooms, and exhibits. Projection size is up to 11′ x 30′. But you can also have a 20′ screen in an 8′ high room. Standard Mini-Max sound is quadraphonic with 7 channels available.

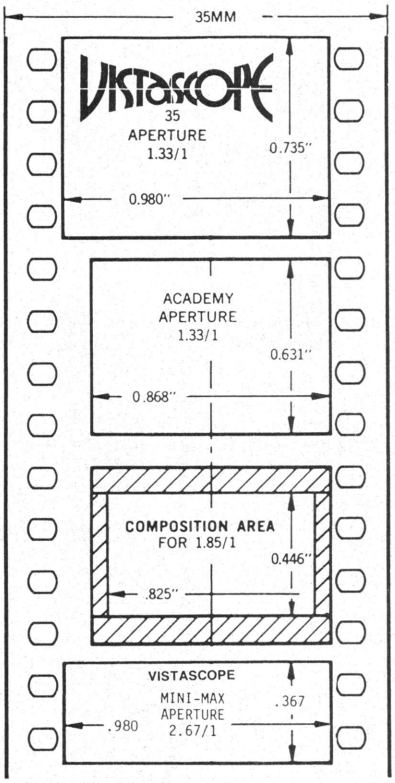
Wooster's interest in wide screen presentations spans some twenty-five years, about nine of which were spent developing Vistascope, when he could spare the time from his commercial production business.

"I was intrigued with wide screen presentations and production in the 1950's when I first saw three-strip Cinerama," remembers Wooster. "Then with 70mm, Imax, Omnimax, Circle Vision, etc., and their success as major entertainment attractions, I felt there was a viable market within the business community for a smaller system that created the same wide-screen peripheral vision effect. Of course, I had no idea of the obstacles I would have to overcome.

"Initially, I selected the 2 perforation per frame format, not simply to conserve film, but to accomplish an aspect ratio of up to 2.67/1. I started experimenting with an enlarged Technicscope format and fisheye camera lenses. However, being a cinematographer, I didn't want to be restricted creatively with being locked into using just a few lenses. Finally, after years of testing, I was pleased with the camera system.

"The next obstacle was editing in the 2 perf Vistascope Mini-Max,"





Vistascope camera modification.* Right: *Diagram of picture area comparisons.

continued Wooster. "After years of searching, I found a Kem table in Canada with a 2 perf head. Since it appeared to be the only one available anywhere in the country that would edit in 2 perf 35mm, I bought it and had it shipped to Atlanta.

"Now, I could shoot and edit. The next step was to project. I selected Ballantine to build the prototype Mini-Max projector to my specifications because of their research with 2 perf projection. They claimed you could get 55,000 runs on one release print. This is a plus for any installation. However, now we are using the Christie P35 projector for our Mini-Max system."

Christie Electric is building the 2 perf projectors on an exclusive world-wide agreement for the Vistascope Corporation.

The basic Vistascope camera is an Eclair CM3 with enlarged aperture and a lens mount modified to accept all Nikon lenses.

"I am using lenses from 8mm/180 degrees to 800mm," adds Wooster. "Also, macro photography is possible. This camera not only uses a variety of Eclair magazines, but has been modified to accept 400' Mitchell magazines, since they are more plentiful.

"We have converted another camera to Mini-Max – a Mitchell NC. A Mitchell BNCR will soon be completed for sound production."

Exciting aerials give wide screen production that extra edge in placing the viewer "in" the picture.

Wooster learned to fly an airplane at 17 for the same reason he flies helicopters today – to get his best shot. Since he began shooting in Vistascope, he has been flying a Robinson helicopter, which is smaller than most and required the building of special mounts for the Vistascope camera.

Two films have been completed in the Vistascope Mini-Max format, and a third one is currently in production. Each displays the versatility of Vistascope as a new wide-screen peripheral vision system.

Adventure In Georgia is a 20-minute tour of Georgia from 1733 to the present. The film is scored with magnificent music, utilizing 4-channel surround sound, and projected on a 11' x 30' screen. It features images of history, nostalgia, discovery, and people having fun at events and places not known to the average tourist or even many natives of the state.

The opening scene is a wide angle traveling shot down a liveoak covered drive to Wormsloe, Georgia's first plantation. Next, gunfire and cannon roars engulf the viewer through surround sound as blue and grey soldiers on thundering horses re-enact a Civil War battle on the big screen. There are some great aerials: flying over Stone Mountain, the largest dome of exposed granite in North America; around skyscrapers such as the Peachtree Plaza, the tallest hotel in the world, and between buildings in downtown Atlanta in spaces barely wide enough for a helicopter. The camera skims treetops and dips close to the surface waters of the Chattahoochee River over hundreds of rafters on a leisurely river float trip.

Wooster mounted the Vistascope camera on a ride car to give viewers a hair-raising trip on the scream machine roller coaster and mind bender that does a triple loop at Six Flags Over Georgia. They even feel the vibrations of the ride through surround sound utilizing low frequency speakers. Within seconds 20,000 people running in the annual 4th of July Peachtree Road Race fill the screen. The scene is back lighted with the early morning light affording the mass of runners an iridescent quality. Atlanta International Airport is shown at runway rush hour with 20 minutes condensed to 30 seconds through time-lapse photography. A regatta of 200 boats set sail in a regatta. The camera takes hair-pin turns in a World Class Auto Race at Road Atlanta, glides through black waters and tree covered inlets in a flat bottom boat in the Okefenokee Swamp, plunges over falls, and dodges huge boulders with white water rafting on the Chattooga River.

The Vistascope camera is so light that Wooster mounted it on a hang glider to obtain a different view of the North Georgia mountains in the fall. It leaps with the glider from an 1100' cliff.

An original rendition of "Georgia On My Mind," edited impeccably to flowing, wide screen visuals shot all over the state, brings the film to a close.

Wooster's second Mini-Max film is "EAA Oshkosh." It is 19 exhilarating minutes of the largest aviation event in the world. Wooster flew the Robinson helicopter from Atlanta to the convention site in Oshkosh to make certain he got the best Vistascope shots. Mini-Max captures not only the activities of this annual event, but also the spirit and mood of the hundreds of thousands of participants who come from all over the world each year to share the love of flying.

Vistascope shows the magnitude of this event when it soars over 325 acres displaying everything imaginable for the aviation buff – hundreds of commercial exhibits, thousands of people camping under the wings of their airplanes, 14,000 campers, 15,000 airplanes, 700,000 people.

When the spectacle of the War Birds simulating a bombing raid from World War II explodes on the screen, the effect is realistic. Wooster was filming from the back seat of a P51 Mustang in the midst of formation flying and zero gravity rolls. When these scenes are projected on a 30' screen, combined with smoke and fire from bombs dropping and engines roaring in surround sound, there is a remarkable "you are there" quality.

Wooster hand-held the Vistascope camera equipped with a 180 degree lens while filming from the back seat of a Falcon ultralight, the Breezy (an open fuselage airplane), a paraplane and a spinning gyrocopter.

He also mounted the camera in the back seat of a Stearman with a wing walker on top while doing spins, loops, 4-point rolls, and flying upside down. The 180 degree lens takes in a wing tip-to-wing tip view.

"There is minimal distortion with the 180 degree fisheye lens, because with the Mini-Max format, I am photographing one half the actual image," Wooster says.

"I really enjoyed filming the Oshkosh event," comments Wooster. "But to say that the crew and I had to be spontaneous is an understatement. Even though we had planned shots, there was always something exciting and unexpected happening to include in the film; like the Voyager, the aircraft that is scheduled to fly around the world non-stop without refueling. Its arrival at the show was not announced until it could be seen overhead at the convention site. Fortunately, we were able to film it landing and do some candid interviews with its pilots. However, I wanted to get some air to air shots from the helicopter. After it landed, no one knew, not even the pilots, if it would fly again before the end of the convention because of adverse wind conditions. Finally, just before dusk one day, they announced it would fly within an hour. We really had to hustle to the helicopter as well as shoot film because we were losing our natural light quickly. Filming it in flight was no easy task. We weren't allowed to fly the helicopter as close to it as I wanted – again because of the Voyager's adverse reaction to strong winds. We stayed in constant radio communication with the pilots and got some exciting footage."

The film ends with an aerobatic show cut to symphonic music, epitomizing man's freedom to fly.

The current Vistascope project is a Mini-Max film and theatre for the Donald C. Cook Nuclear Plant's Visitors Center in Bridgman, Michigan.

"The film is a dramatic tour of the operations of Cook Nuclear," comments Wooster. "The theatre will contain a 28 foot wide screen. The projection system will feature 4 channel surround sound and an automatic looping system that affords continuous projection and eliminates film rewinding."

△

Cheryl Spain is a freelance writer in Atlanta, Georgia.

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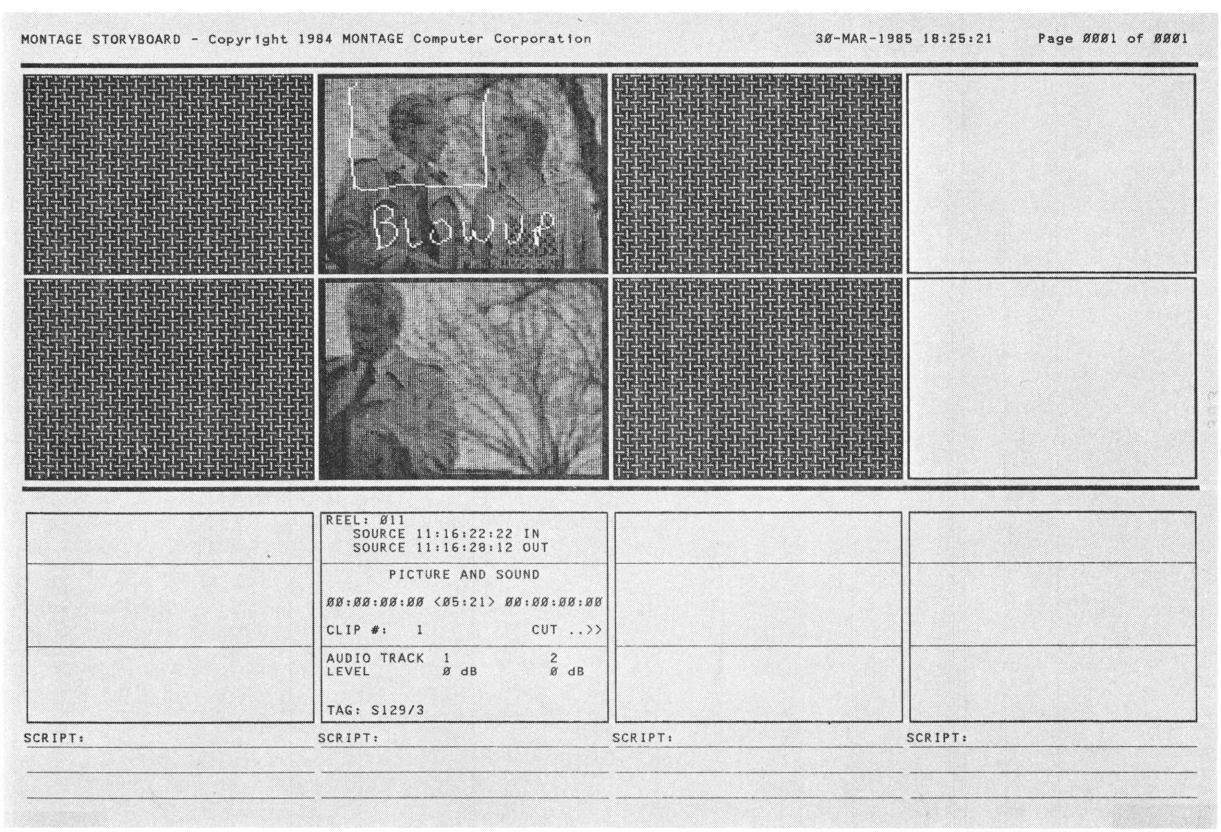
Montage: Video Assisted Post Production

by Stuart Bass

When both Stanford Tischler, ACE and I were asked to cut *Peyton Place the Next Generation,* on the Montage picture processor, we were delighted. We had just cut *AfterMASH* using the CBS-Sony single camera editing system. This was a prototype developed by CBS and Sony as a partner to the Ikegami EC-35 electronic cinematography camera. The system used a light pen rather than a keyboard and simple graphics in place of numbers. It was the first viable videotape editing system that allowed an editor to make changes without numeric gymnastics.

Tischler, an Emmy-award winning editor, whose credits include 11 years of *MASH* editing by conventional methods, adapted rapidly to the system and has vowed not to return to conventional film cutting. "It's not civilized," he comments, "I could never wear clean white pants in the cutting room before."

Photo by Bruce Green



Above: ***Stan Tischler and Stuart Bass at the Montage processor.*** **Left:** ***A Montage storyboard.***

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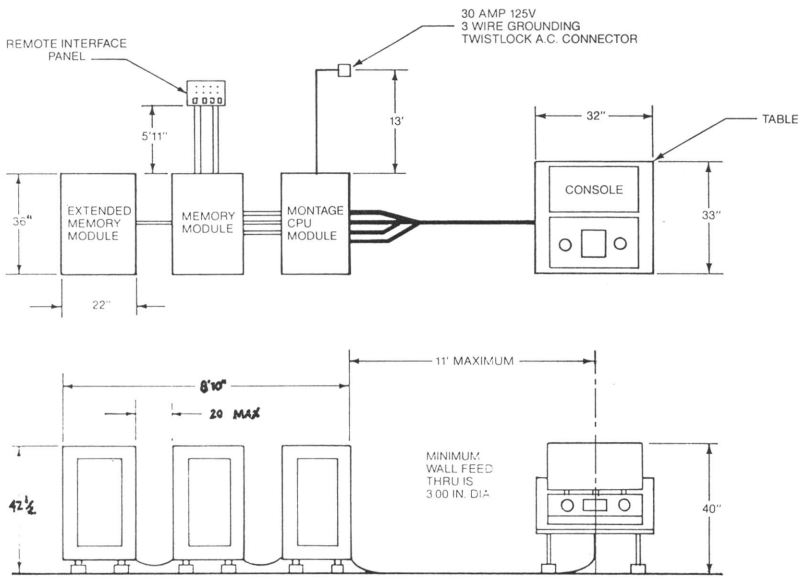


Montage System.

When 20th Century Fox bought two Montages for a Glen Larson project, we felt compelled to take the weekend course on Montage editing. And when Joe Silver, Fox's post production supervisor announced that he needed people familiar with the Montage for the upcoming two hour feature *Peyton Place,* we were ready.

Our first job was to transform a standard film editing room to a Montage room. Separate power and air conditioning had to be installed. Stan discovered that an upside down trim roll shelf held the many Beta tapes perfectly. As we were getting used to the comforts common to the videotape world, we added lush chairs and focusable lighting to the room. On one wall we affixed a large billboard. We set up a story board of scene descriptions to monitor editorial status as scenes were cut or modified. This aided in the task of loading the dailies into the computer, too. The Montage, monitors, and additional 3/4" viewing tape deck were added. When we were finished the room bore no resemblance to a film editing room. It had the feel of the engineering deck on a starship.

Although the editing room lacked the usual clutter of trim bins, boxes, and reels, it still had the banter. Despite the high tech atmosphere, the main topic of conversation was always the story. Even in the very first days of cutting when we were trying to get our bearings on the machine, we were worrying very little about the integrated circuits. Instead we discussed the ways to make the scenes work.

One scene was of a sultry dance at Ada's Tavern. Peyton's sexy young girl, Kelly, starts to dance to play off her boyfriend against another man she is trying to seduce, and make a scene in front of the rest of the town. This is an extremely complex scene that had to be cut within the beats of the music as well as the dialogue rhythm. Stan and I took turns working on this scene, trying a trim here, a different shot there, bouncing ideas off each other. We could always save earlier versions, view them and pick the best ideas out of the lot. The end result was a scene where every editorial possibility had been exhausted. The director ended up seeing a first cut of what was really the best version of the scene. This became a fairly standard practice on any of the key scenes in the show.

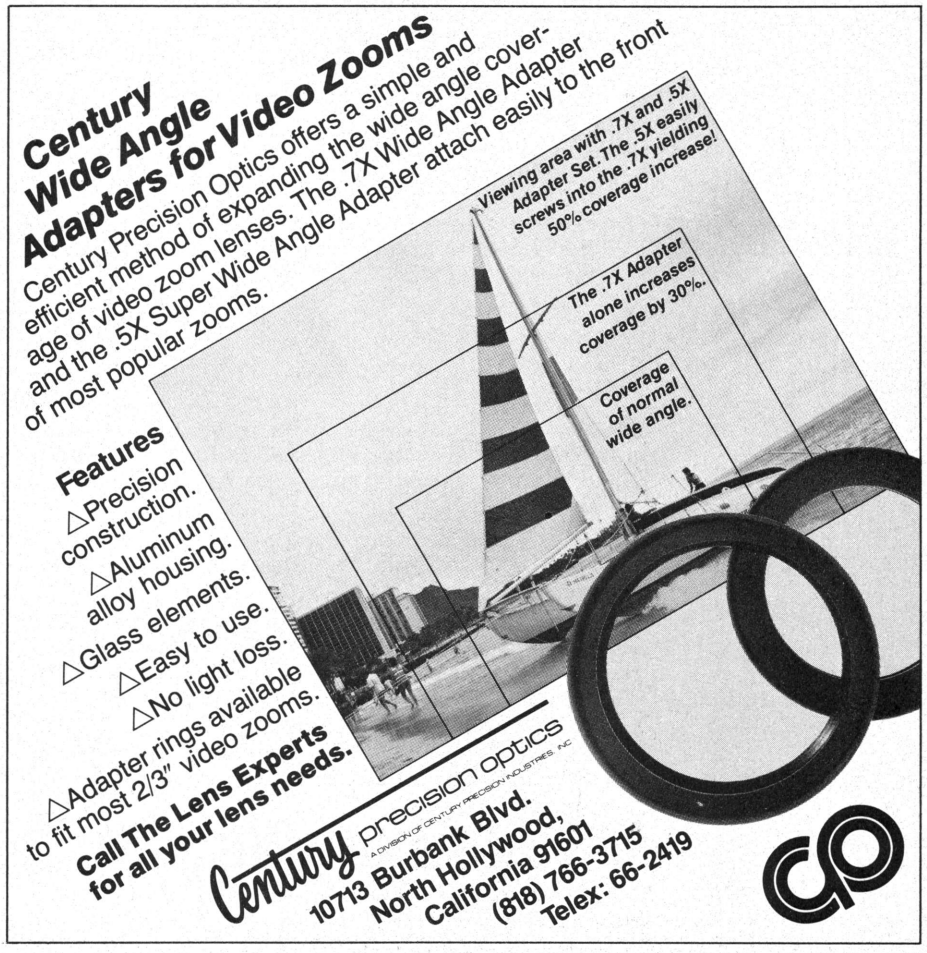
The picture was shot in Texas. Deluxe Labs would process and assemble the negative by morning and it would be transferred to a 1" tape and run in the producer's office by lunch time. After viewing the 3/4" dailies, we would return to the cutting room, load them into the Montage and start editing. Because we were not able to cut and load simultaneously on one machine, we found ourselves working long hours. We divided the show into eight acts, and dailies from each act were

loaded separately. An hour of dailies representing much material could take up to three hours to load. Although, we lost several hours of cutting time during the day by this process, we gained momentum, in that Montage editing goes very quickly.

In order to screen the show for the producers we made a 3/4" cassette of the show to run in their offices. This process often became more time consuming than the changes. The transfer of the two hour show was done in real time plus time added for changeovers between acts, and stopping to add temp effects and editorial corrections noticed while watching the transfer process. Making a simple transfer of 90 minutes of material could take as long as seven hours.

Eight days into the shoot we had a major disaster. The Montage did not like the time code on the 3/4" tapes we were using. Time code problems are the most elusive demons in videotape post production. In order for the Montage to work frame accurately, it requires perfect SMPTE time code otherwise it spits out the input material. This is done as a protection so that there are no surprises during 1" auto assembly. Had the Montage not seen this problem early on we would have been in real trouble later. It took several days, but we discovered that Deluxe's time code generator was creating discontinuous time code. For example, it would read as, 10, 11, 12, 13, 13, 13, 16, rather than a progressing sequence of numbers. The problem was corrected and fortunately, the system used for cutting *Half Nelson* became available, so it was possible to divide the editing work between two systems and catch up with the schedule.

On film shows, we usually screen the picture for the director on a projector or KEM table, take notes on changes and then return to the Moviola to begin the process of re-editing. With the Montage, most changes could be made before the director could finish his description of them. Larry Elikann, our director, would ask for a scene to be moved around, another to be deleted and he would get up to light a cigar thinking he had time for a smoke only to find the change was made and the Montage was playing back the new sequence! After several days with the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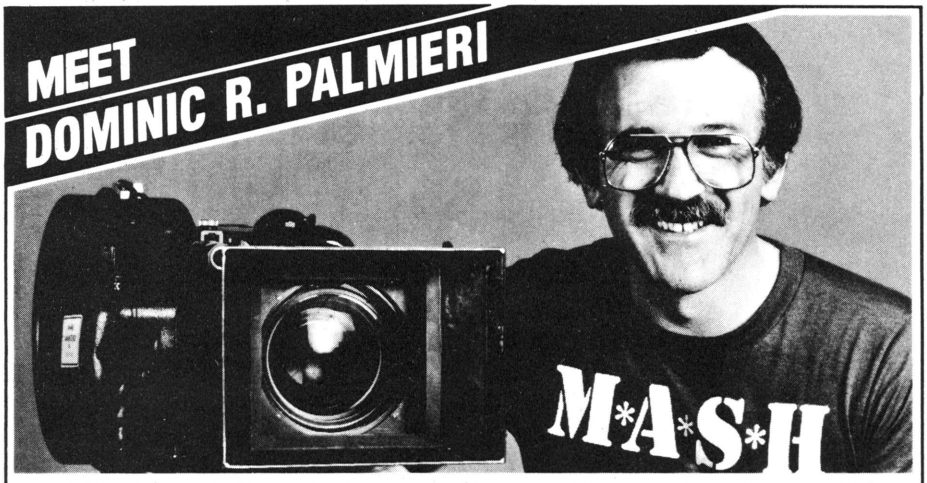

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system he commented, "The Montage and its offspring will be as revolutionary to the editing business as the single lens reflex motion picture camera was to the motion picture business."

In re-editing the show, the Montage offered us features reflecting the best of both the film and videotape worlds. The producers and director could easily make changes and we could quickly make them. Trimming the same cut over and over again in film would normally leave a spliced up, sprocket damaged film. On conventional videotape editing systems, the lengthening of a shot would require redubbing the entire show in real time, a process that has made traditional tape systems unsatisfactory for film shows. With Montage it is possible to try a cut in several ways effortlessly, the tendency to compromise on making a cut that may or may not work is gone. Often we tried cuts, that, in theory, appeared not to work, but after successful experimentation they did. Editing is not an exact science, there are no rules. The ability to play with cuts opens up editing to a spontaneity much needed in a creative field.

A major difference between film and tape shows is that it is important to lock down the picture before auto assembling the show. On a film show, the workprint ordinarily would be delivered to effects and music editorial, and any changes, although bothersome, could be made then. In tape, the auto assemble is in effect negative cutting. This is done before the show is turned over to effects and music. Any changes have to be made on the master 1" tape in an on line bay at a costly hourly rate and generation loss to the tape.

After getting the show approved and to proper length, the Montage generates 8" floppy disks for the CMX on line system to read and auto assemble the show. In order to determine the length of time it takes to on-line a show, consideration must be made as to how many reels of material there are and how many events there are in the edit list. We used the services of Pacific Video to on-line our show. They have experience with Montage generated lists, as well as on-lining single camera film shows via their newly formed "Electronic Laboratory™". It was refreshing to see the exuberance and creativity they brought

to this project. *Peyton Place* comprised about 1100 edits and took a little under 11 hours for on line. One hundred edits an hour is a slightly better than average.

On *Peyton Place,* we received a list of changes the day after on line. This meant pulling a time coded 3/4" tape of the edited master and re-editing it. In order to save time we found it most efficient to make the changes on a Convergence ECS-90 with a punch tape output. To accomplish the same end on the Montage would have required inputting the newly on-lined show plus the dailies on one load. This would be very time consuming and would tax the limits of the system.

As these new editing techniques become refined and producers grow more familiar with tape finishing, we will fall into these traps less easily. It was surprising to all of us as novices how few pitfalls actually impeded the schedule and budget. Even with our setbacks and mistakes, we stayed well below the budget compared to a pure film show and, in fact, came in under the projected budget for a videotape show.

As we explore avenues of electronic editing, one consideration has been not to change the shooting techniques of the production crew. Therefore, no special slates, timecode generators, or formulas are added to the shoot. Dailies are processed overnight and transferred to tape the next morning. They are usually available for viewing during lunch the next day. In the case of *Peyton Place,* the production team would receive a 1/2" VHS dub of the material the next day on location.

The process of syncing up track directly to negative has been approached in several ways. For *Peyton Place* we utilized the most obvious but perhaps not the best technique. We transferred the location sound to mag stripe and "popped" the tracks (marked the claps). The sound was then sunk up take by take directly on the Rank Cintel. This slowed down the transfer time considerably, but saved the time and cost of pre-syncing the dailies before transfer. One disadvantage of this process is that dailies are not always perfect. Some shots have to be retransferred, wrong takes are circled, the framing has to be changed, or a scratch has to be blown out of a shot. This means search-

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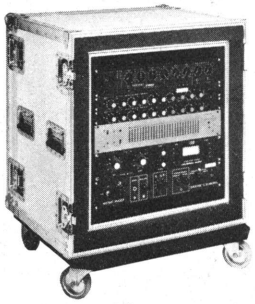

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ing through the negative and resyncing the shot unsystematically. A time consuming and costly process. On *Peyton Place* for example, one day's dailies were misframed. Reframing the dailies meant re-transferring them and re-syncing them so they would retain the original time code values. If the original time code was not retained it meant re-editing the sequences involved. This took half a day and cost more than the transfer and original syncing of that day's dailies.

Other syncing up techniques have been developed, the most noteworthy of which is by Randy Gladden of Randken. Gladden transfers the location 1/4" directly to 1", laying down the circled takes with about 3 seconds between shots. Because the 1/4" is transferred directly to 1", a generation of sound is saved. A computer readout describing where the slates must fall on the negative rolls is compiled. The negative is broken down and assembled to conform to the 1" tape. The computer readout can then be enlarged to include title, camera roll, sound roll, scenes on the roll, sync or MOS, time code in and out of each scene, and key number in and out. This data is available to log in the show for editorial purposes as well as helping to locate negative for future opticals, finding key numbers to time code offsets, and cutting negative from a time code edit display list.

In addition to this organizational advantage and better sound quality, Randken's process is faster. The sound transfer can be carried out at night as the negative is being souped, the teleciné becomes a simple one pass process at 6:00 am and dailies can be viewed at 8:00 am. With the help of a satellite the dailies can be viewed on location at the same time half way across the Earth.

Our effects and dialogue cutting were handled by one of the oldest sound companies in Hollywood, Glenn Glen. Bill Wistrom and his team cut the effects tracks using their PAP system (Post Audio Processing). This system has been around for about 10 years and won an Academy Award for best technical achievement in 1977. Comprised of various video and audio tape decks locked together, the PAP system has proved to be one of the most efficient ways to cut both video and film sound electronically. Most importantly, the

PAP system allows for film style sound effects editing. The dialogue is split to A B C D and X tracks, and the effects are built on separate tracks with extensive channel spread. All backgrounds are cut frame to frame. The cuts can always be previewed against the picture. Effects and dialogue are pulled from a digital effects library, carts, 1/4" dailies, or the ADR stage master tapes and laid in on a 16/24 track 2" tape recorder that is locked to the video picture. This saves considerable time in ordering up effects and dialogue to be printed because these tracks can be immediately accessed and used directly from their sources. There is no need to make prints, saving editing time as well as cost and generation loss. The technology has progressed so that the previous limitations known to conventional videotape "sound sweetening" are no longer applicable.

Although on *Peyton Place* the sound was for the most part standard analog sound, this process can be entirely digital, which increases the sound quality beyond conventional theatrical sound. Having a digital effects library allows quick access to effects as well as first generation sound throughout the process.

Peyton Place's music editing was handled by the recently formed Music Design Group, headed by Roy Prendergast. Roy started designing his own computer controlled music editorial system in 1982, when he saw the need to apply the advantages of film music cutting techniques to video editing and vice versa. Until then, taped shows such as *That's Incredible* did not use music editorial. Music was brought into the video sweetening stage on 1/4" and laid in directly during the costly process of dubbing. Roy saw that the traditional music editorial techniques of filmmakers could be enhanced by video sound editing.

Prendergast's system involves two issues, music breakdown of the show for the composer and film-like electronic streamers superimposed over the video to cue the conductor during scoring. The first step, creating a breakdown or cue sheet for the composer, is produced on a Sony computer by entering timecode from a 3/4" videotape of picture. This data is related to film footages along with cue lines and any

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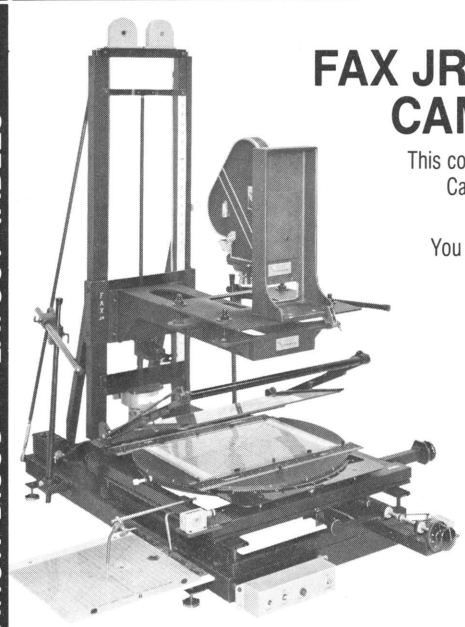

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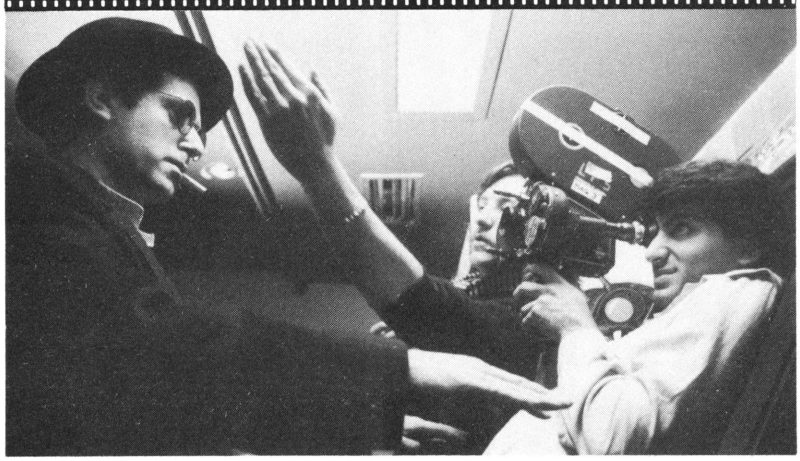

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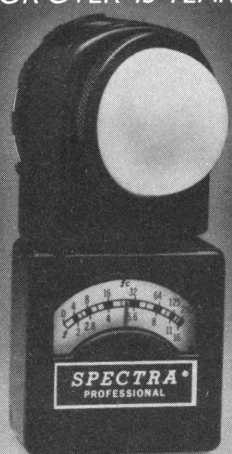

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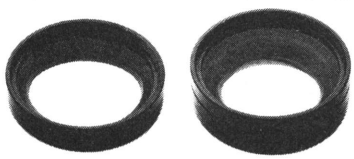

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other information needed by the composer. This list can be printed out and modified at any point. If any changes in music cues or picture are made after the fact, the computer can modify the data as needed. On the scoring stage the same portable computer acts as projectionist and grease pencil. It aids in cueing up the picture for playback and positions streamers at predetermined points. The only changes to traditional scoring techniques is that the crew must watch a color video tape rather than a black and white dirty dupe of the show, and the time to introduce streamer cue changes and recue the picture now is instantaneous.

After the scoring session, the music is laid in with the picture using existing pre-lay techniques on 1/2" 4-track. This is delivered to the dubbing stage and can be locked to either film or tape elements.

The composer gains more creative time to write music because of the time saving in preparing the picture for scoring. Prendergast projects about a 25% savings in music editorial budget when comparing this new method to the tried and true. These savings are most evident in the reduction of stock making of one to ones, and black and white dupes. He also adds that there is greater demand for stereo release and as long as the sound track is created on mutitrack machines, stereo can be added at little additional cost.

The 16/24-track tape provided by effects editors and 4-track tape provided by the music editor were locked together and mixed in a conventional manner. To all appearances *Peyton's* video mix was the same as a film mix, although video cueing is slightly faster.

Currently the most popular color correction system in use is designed by Image Transform as a by-product of their tape-to-film transform system. Its use is reminiscent of the film process. Basically, all dailies are transferred to tape as a one-lite workprint. Detail is retained in the blacks and the color is fixed for the first scene on the reel. The video signal is not processed in any way by enhancement or noise reduction. After the show is assembled on 1", the master tape is color corrected in the tape to tape video sweetening suite at Image Transform.

(Seasoned film professionals choke on the words "video sweetening", preferring "color correction").

Image's color correction system is far more versatile than conventional film color correction. In addition to changing the color and density (Phase and voltage in video longo), the contrast or gamma can be adjusted totally or just within a separate color. Thus, a night scene can be corrected so the background is sharp but the red in the faces retain a lower range of flesh tones. Characters' faces keep their color and tonality while the background glistens in the night. Also it is possible to change color corrections as a shot progresses. If an actor walks through a hot light or past a window, the brightness can be pulled down as the actor passes the hot spots. The shot looks consistent and the correction appears transparent as if it was never done.

A recurring problem related to color correction has been that no two monitors are the same. To compound the problem, the $10,000 professional monitors bear no relation to the $300 home set. The professional monitor has greater clarity, shows black as black and gives a whole range of secondary colors. Even the top-of-the-line Sony Trinitron tends to show black as grey (depending on the scene) and only shows the primary colors with few subtleties between the reds, greens and blues. Therefore, to get a particular look to a show, a comparison must be made of the image on a combination of monitors, and one chosen, to assure uniform color guidelines. As the Montage, and other editing systems emerge, an important transition is taking place in modern filmmaking. Those editors who are open and excited about the entrance of these machines to the market will find themselves at the forefront of the industry. Producers who have to deal with deadlines, bottom lines, and take all the risks, will find that these systems pay for themselves in better product at lower costs. As to what systems are the best, what procedures work, and what to avoid, this is something that can only be worked out by pioneering efforts. We will make mistakes and learn from them, and in the end, hopefully, learn to tell better moving picture stories.

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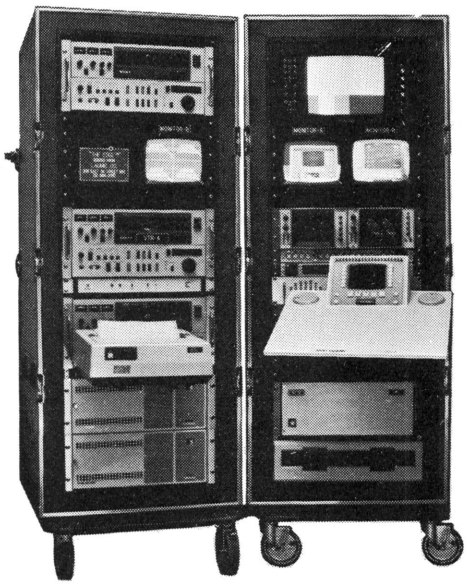

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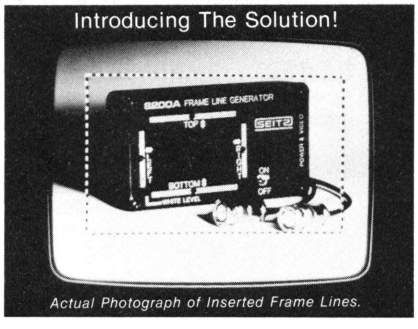

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Inner Tickings of the Montage

Montage Computer Corporation was formed in November 1983, when Ronald Barker approached Chester Schuler about an idea he had for an editing system. Barker, whose background was in SMPTE time code controlled devices, invited Schuler to attend a conventional videotape editing session. Schuler, whose background is in computer applications and electronic equipment design and manufacture, commented, "I was aghast at the awkwardness of videotape editing. What are they trying to do? The technology is too intrusive in videotape editing. Why not use pictures to edit and let the computer take care of the numbers?" With that in mind, he hired a group of computer and video engineers to create an editing system starting from scratch rather than reworking existing systems. "Ideally, the editor should be manipulating the controls intuitively and should be purely involved with the editing process," Schuler continues, "He should literally be handling the media itself." With the financial backing from Prudential Insurance, the first prototype Montage Picture Processor™ was built by November 1983. The first Montage was up and running at VCA teletronics in New York City in February 1984. To date there are 22 systems working on a variety of projects nationwide.

In order to understand the working of the Montage it is necessary to throw away all preconceived notions of film and videotape editing. It has very few attributes in common with traditional systems. Before it came along it was almost impossible to conceive of an editing system that did not utilize fast forward, rewind, and scanning at different speeds. And anyone who has used the Montage successfully understands these functions need not be important. To fully comprehend the Montage it is best to understand the basic components of a computer.

Both film and videotape come with their own sets of jargon such as; *latent edge numbers, densitometry, time code, emulsion, and NTSC.* Computers use their own terminology. Therefore, on the Montage, dailies are not transferred to Betamax decks, they are *input* to the *memory drives.* Film is

not cut, a *clip* is *split*. These distinctions are not arbitrary, they relate directly to the operation of the system.

As with any computer, the system is constructed of four parts; inputting devices, a controller or CPU (central processing unit), memory and output devices.

The Montage works with dailies as memory. On a word processor or an accounting computer vast lists of numbers of text can be moved around, deleted, adjusted, and manipulated in memory with simple keystrokes. When dailies are put into the Montage, they are stored in two forms. First, they are stored in standard analog video form on 7 to 17 consumer Betamax machines called memory drives. Secondly, sample frames such as the head and tail of each shot are stored as a black and white digitized picture. Two of these black and white "snapshots" of the show represent the head and tail of a clip. When you want to view the film in between the clip the Beta or memory drive spins up to its black and white counterpart and plays the actual show. The clip along with its SMPTE time code, latent edge numbers, and any other information you want to attach to a piece of film (scene and take, MOS or not, wild track . . .), is stored on a hard disk. Hard disks are fairly recent additions to computer technology. They allow vast quantities of information to be stored and retrieved quickly. The dailies are input and stored in two retrievable forms: Digitally on a hard disk and actually in a Betamax tape deck. Once the dailies are in memory they can be manipulated and accessed almost instantly.

The central processing unit is as on all computers, a black box, with an "on" button. Its job is to talk to the tape drives, the memory, the printer and the operator. In turn you talk to it through two sources: a standard computer keyboard, and the two-knobbed console usually associated with the Montage. The CPU coordinates all the units and makes the machine fly.

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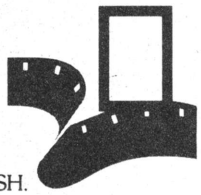

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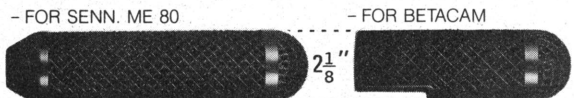

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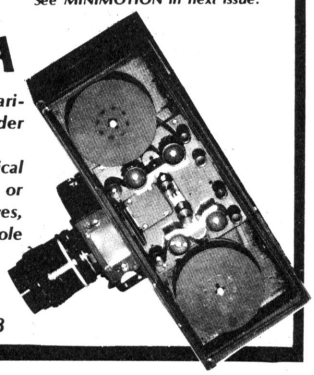

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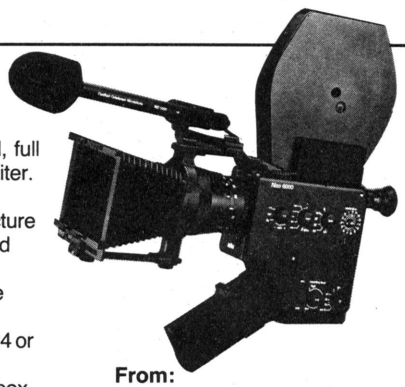

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Stuart Bass is a film/video assistant editor who has worked with many experimental editing systems.

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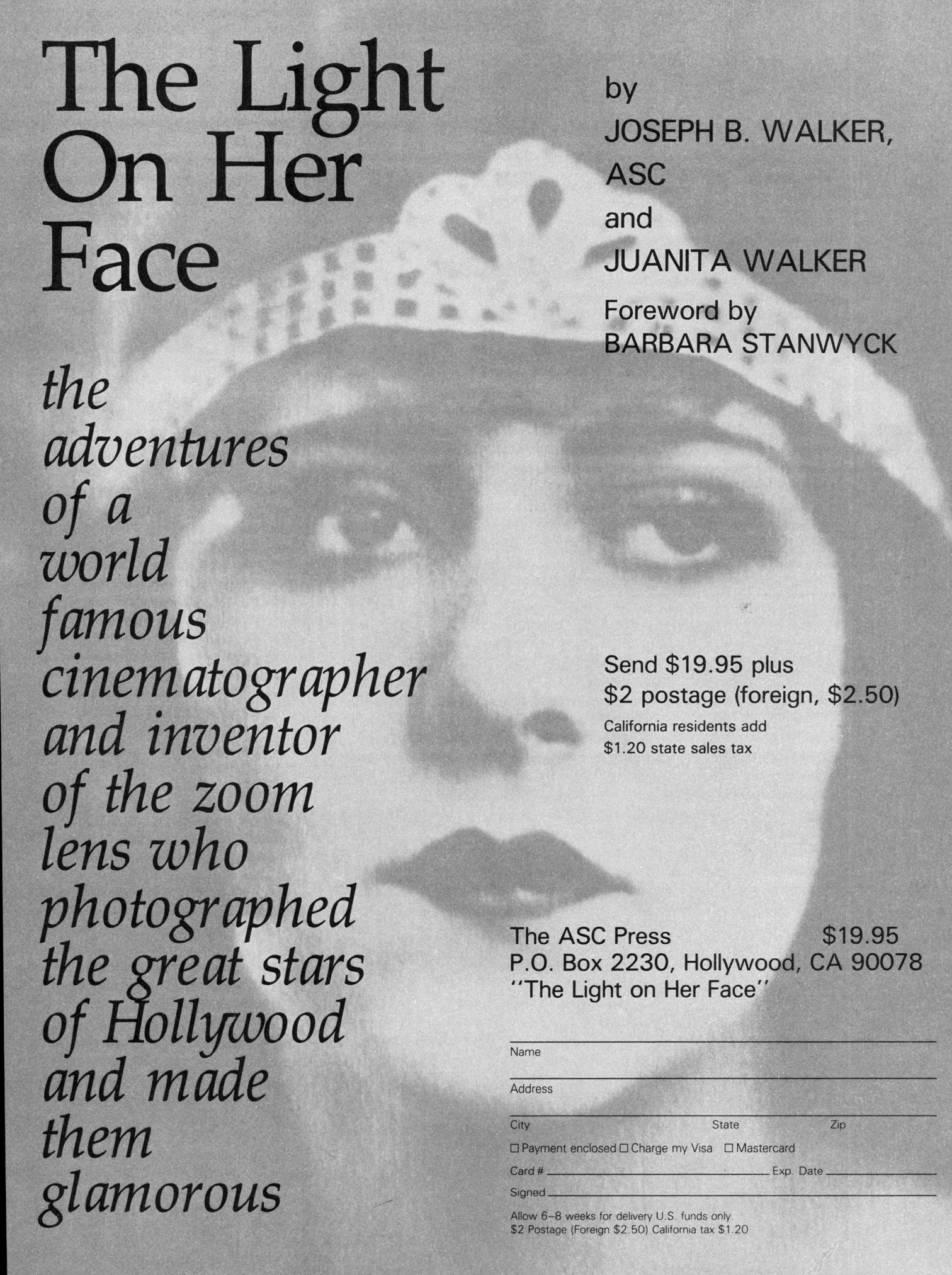
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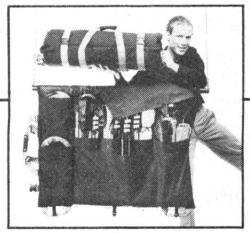

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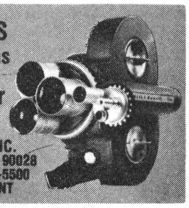

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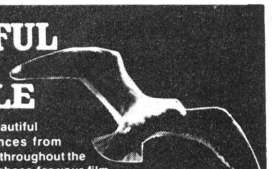

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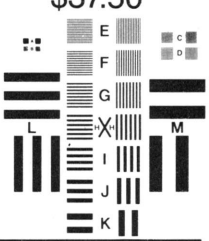

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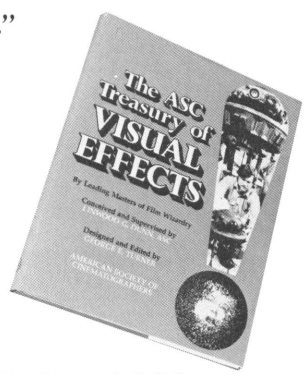

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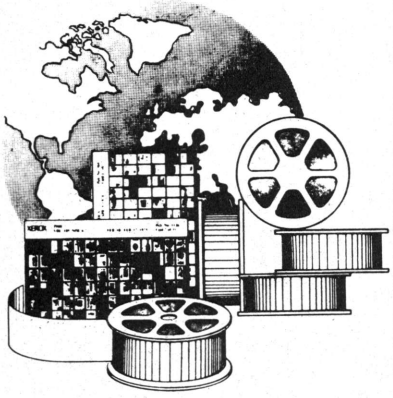

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From the Clubhouse

Richard C. Glouner, ASC, was awarded the Governors Trophy, top prize in the 1985 ASC Golf Classic, at a ceremonial banquet at the Clubhouse in July. The annual tourney, according to chairman Gene Polito, ASC, is limited to 72 active members, associate members and guests. Tee off was June 30 at the Brookside Golf Course in Pasadena.

Stanley Cortez, ASC president, presented the Governors Trophy, a perpetual award kept on display at the Clubhouse, which is given for the lowest score posted by an active member. Glouner also won a personal trophy and prize for low net and first place awards for low gross score. Alric Edens, ASC, won second place trophy and prize and Howard A. Anderson Jr., ASC, won third place honors for low net in the Active Member Flight.

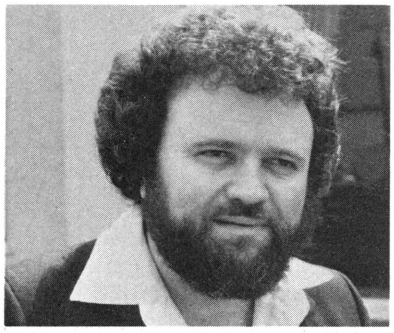
In the Associate Member Flight, Bill Bickford won the low gross awards and placed second in the low net category. First and third low net trophies and prizes went to Doug Fries and George Hutchison, respectively.

Jim Jacobs won low gross honors in the Guest Flight. Low Net awards went to Ken Knaus, first place; Jacobs, second, and Pat McGinnis, third.

Closest-to-the-Pin trophies and prizes were taken by George Hutchison, associate member, and guests Jack Lacey and Don Dittmar.

Hugh H. Gagnier, ASC, blushingly accepted the Special Award for Highest Net Score, which he won with an 82.

Cortez and Glouner

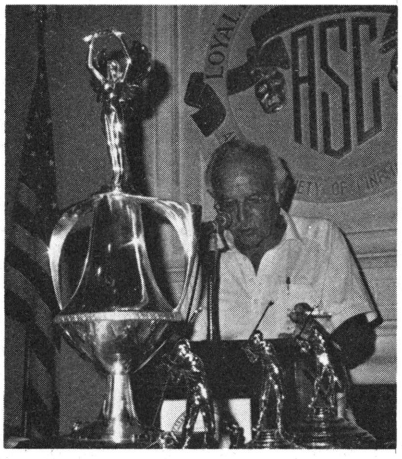


Daviau

Allen Daviau, who sprang to prominence in the field of cinematography when *E.T.—the Extra Terrestrial* was released three years ago, is the newest director of photography elected to membership in the ASC. The burly, bearded New Orleans native entered the film industry about 18 years ago as a maker of music promotional films—the ancestors of today's "videos." He went on to shoot hundreds of commercials, industrial films and documentaries before entering the mainstream of feature film production.

Some of Daviau's films are *Rage* and *Harry Tracy* (both 1980), *Legs* and *Twilight Zone—The Motion Picture* (both 1983), and *The Falcon and the Snowman* (1984). His most celebrated work is *E.T.,* an immensely popular film reissued theatrically this summer. The unusual lighting style of this realistic fantasy has been highly influential on many subsequent films.

Color Purple, now being filmed as a Steven Spielberg production, will be the first picture to carry the billing, *Director of Photography, Allen Daviau, ASC.*



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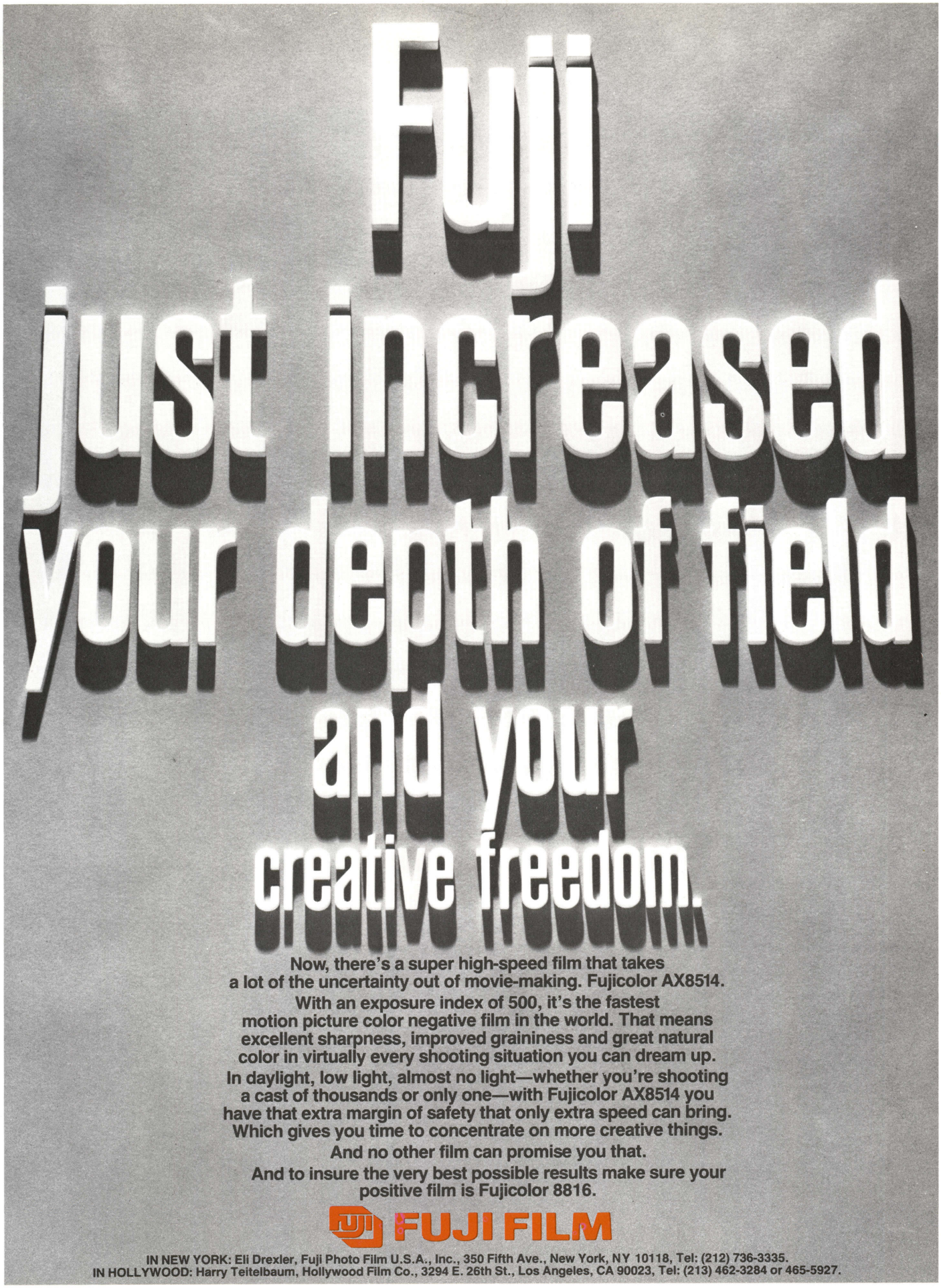
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